

# AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K. MINOR, EDITOR.]

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[VOLUME IV.—No. 26.]

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## AMERICAN RAILROAD JOURNAL.

NEW-YORK, JULY 4, 1835.

THIS number completes the *first half* of volume FOUR of the Railroad Journal. The Journal was commenced with little expectation of profit, yet not without confidence that the receipts from subscriptions and sales would meet its expenses for paper, engraving, and printing. Our expectations have not been realized, and, therefore, retrenchment must become the order of the day; *present engagements, however, will be fulfilled*, and the Journal, containing 16 pages each number, will be sent to all who are now subscribers until the close of the volume, or 1st January next; but *after that date, and to all new subscribers from the present time*, the Railroad Journal will contain *eight* pages only to each number. The terms, however, will not be reduced, as the expenses of the work must be paid, hereafter, by those for whom it is published, or it will not be continued as a distinct work. I profess to be liberal, and desire to be of service to others, yet I cannot afford to work for nothing, as its editor, and fall in debt at the close of the year for the privilege. If the work has been of any service to the cause to which it has been devoted, then should it be sustained, if not, then it should, and *shall*, be discontinued, or devoted to other subjects—reprinting of novels for instance, or the like works of utility! which seldom languish for want of subscribers.

Subscribers, who are *now* indebted for the Journal, will greatly oblige us by remitting the amount *due*, or we shall certainly oblige them—by *discontinuing* to send it to them,—as a work which is not worth paying for, in the course of the year, cannot be worth having.

☞ If this should meet the eye of any who desire to aid in sustaining the work, they will learn from it, that for a *ten dollar note, current money*, they can obtain the work *entire*, from commencement to this date, *three and a half years*, stitched in *half yearly* parts, of about 400 pages each, which can be sent by mail to any part of the United States.

☞ If *two hundred complete sets* of the work now on hand could find sale immediately, it would place the *balance* on the other side of the ledger. Would it not be for the interest of railroad companies, throughout the United States, to purchase each *four or five sets* of the Journal, rather than to have it discontinued? Who would be the greatest gainer, those so deeply interested in knowing all the improvements *connected with railroads*, or the proprietor, who has published it *near four years without a penny for his personal services*?

This is the *last appeal* in its behalf; and should it not produce the *desired* and *NECESSARY* result, the Railroad Journal will *probably* be merged in the Mechanics' Magazine *after the close of the current volume*; or be discontinued entirely.

AUGUSTA AND ATHENS (Geo.) RAILROAD.—We continue in this number the Report of A. A. DEXTER, Esq., which was commenced in our last, on his survey of the route for a Railroad from Augusta to Athens, Georgia. This will be, in truth, a continuation of the Charleston and Augusta road which is now in successful operation; and another important link in the railroad which will surely be extended through Alabama and Mississippi to the Father of Rivers, and probably to the Gulf of Mexico.

We are much obliged to Mr. Dexter for his politeness in forwarding drawings also with the report, as it is of importance, as we believe, to Engineers, to know the manner in which the different roads are constructed; and we like to have the "Journal" made the medium of that communication. For its long delay after it came to hand, he will please accept as an apology—"mis-laid amongst other documents on the Editor's table."

EXPERIMENTS on the Strength and other Properties of Malleable Iron, by PETER BARLOW, F. R. S., London.—We commence, in this number, the publication of this work, and shall publish the remainder of it in the two succeeding numbers. The information contained in it will be found highly valuable to those interested in Railroads.

Mr. Barlow, it will be seen, gives the preference to the parallel rail, and says, that on the Liverpool and Manchester Railroad they re-place the fish-belly with the parallel rail, whenever it is necessary to take up a defective rail.

☞ PIRACY.—The Gallatin (Miss.) Democrat has the following important intelligence:

ADDITION TO A NAME.—We learn that the paper to be published at Madisonville, in this State, called the *Southern Transcript*, is to have an additional name appended to it, and to be called The Southern Transcript and "Railroad Journal."

Now look at the title of *this* Journal, and then tell us if they have not *pirates* as well in Mississippi as on the "high seas," or in New-Jersey. But, never mind—there is work enough for more of the same name, if they will only strive to advance the cause they profess to advocate. They will find, however—as *we have*—that the name will not ensure a patronage equal to its expenses, if they give the necessary engravings and illustrations.

We are gratified to learn that Captain McNeil is appointed Chief Engineer of the Long Island Railroad.

## MISSISSIPPI AND PEARL RIVER RAILROAD.

—We copy the following notice from the Gallatin (Miss.) Democrat. This road, when completed, will be about 120 miles long—extending from Natchez to Jackson.

**RAILROAD SURVEY.**—We had the pleasure of conversing with Mr. F. H. Petrie, Chief Engineer, and learn that the route of the railroad from Natchez to Gallatin, and as far as it is now surveyed, is not only practicable, but that, in his own words, "fewer difficulties will be encountered in its execution than are ordinarily met with, on so great an extent of line. Other routes will be examined, and when the difficulties and facilities incident to each are ascertained, the results will be laid before the Railroad Committee."

## [COMMUNICATED.]

Operations are just commenced on the Andover and Wilmington Railroad. The Stock is 1 per cent. above par. A gentleman informed me this week that he was offered 80 dollars advance on his 80 shares. This route extends 7 2-3 miles from the Lowell Railroad at Wilmington, to Andover. The Directors of this Company, whose charter has been extended to Haverhill—10 miles further—it is said, contemplate breaking ground soon on that part of the route between Andover and Haverhill. There is, besides, a Company formed for the purpose of extending the route from Haverhill to the line of the State of Maine—and a petition has been presented to the present Legislature of New-Hampshire, for a charter. It is also contemplated to form a Company, and to petition the next Legislature of Maine for a charter, for extending the route to Portland. Thus a line of railroad will probably be established between the cities of Boston and Portland, within a few years. T.

A bridge is about to be constructed over the Ohio at Louisville—by a joint Stock Company. The estimated cost is between three and four hundred thousand dollars. Books for the stock are to be opened in this city and Louisville on the 13th July.—[N. Y. Amer.]

**THE MENAI BRIDGE.**—A friend of ours, who lately crossed this bridge, was informed by a gentleman who resided close to it, and has erected standards by which to mark the degree of vibration to which it is subject, that during the late violent gales it was on several occasions so much agitated as to oscillate to the extent of eight feet six inches—that is, four feet three inches both ways, out of the straight line. We believe, however, that even a much greater rate of oscillation than this was allowed for in the calculations on which it was constructed.

**A RAILROAD from Athens to the Piræus** is stated by the Munich Journal to have been contracted for by the Greek Government, with the banker Fereldi.—[Lond. Mech. Mag.]

About 50l. were received, in pence, from the frequenters (nearly 10,000) of the London and Greenwich Railway Mall on Sunday.—[Herald.]

## Report of A. A. DEXTER, Esq. on the Survey of a Route for a Railroad from Augusta to Athens, Geo. [Continued from our last.]

I shall now proceed to furnish estimates in detail for the various sections into which the line is divided, as shown upon the maps.

The estimate of evacuation and embankment will be made by the line of graduation established on the profiles, furnishing the surface on the line of survey. Although, on the aggregate, of greater lineal extent, this surface will not, generally, materially differ from that of the assumed line of location shown upon the maps.

Further examinations may, in many instances, effect a favorable change in the aspect of the profile, as well as in the line of location.

In my estimates, I shall endeavor to make such allowances for improvements, where I have definite knowledge in regard to their practicability, as will bring the result nearer the truth. I furnish them as approximate estimates. Accuracy can only be arrived at after the location has been definitively fixed on the ground, and all the minute data obtained for the purpose.

## SECTION NO. I.

This section is 13½ miles in length, from Augusta to the ford of Butler's creek, near Verdery's.

This line is necessarily very circuitous, to avoid the high ridge between Rocky and Butler's creeks, which, at the most favorable point of crossing, is utterly impracticable, requiring two long planes of graduation of 1 in 100, (52 8-10 feet in a mile,) with 40 feet depth of cutting, and 20 feet height of embankment. The cost of graduation in reducing the "Hillock" to this grade, would not fall short of \$30,000, which would more than provide for the additional extent of road, about 3½ miles, necessary to avoid it. The route we propose passes down the Savannah road, and to Judge Schley's, on the Louisville road, at Butler's creek, where the ridge before mentioned abruptly terminates.

An easy and gently ascending graduation may be obtained on the north side of the creek, by Schley's, Walker's, Fox's, and Hale's saw-mills, to Verdery's.

As no instrumental examination has been made of this section, on the route recommended, we have no data except that derived from personal reconnoissance, and comparison of the ground with other routes. The average depth assumed is, I am confident, sufficiently great, and the soil being for the most part loose, and easy of excavation, the price ought to be an ample one.

## ESTIMATE.

77,858 c. yards excavation and embankment on the first 6 miles, 10 c.	7,785 80
6 miles construction plan No. 2, at \$4,135.	24,810 00
Bridge work across creeks.	1,800 00
Culverts and road bridges.	1,000 00
176,938 cubic yards of excavation and embankment at the most, 7½ miles at 12 c.	21,232 56
7½ miles construction, \$4,135.	31,012 50
Culverts, road bridges, &c.	500 00
3 turnouts, at \$600.	1,800 00
3 houses for attendants.	1,500 00
Grubbing and clearing for the 13½ miles, at \$100.	1,350 00
Extra tracks at termination.	1,000 00
	93,790 86
Add 10 per cent. for contingencies.	9,379 08
Amount.	\$103,169 94

## SECTION NO. II.

From Butler's creek, at Verdery's, (13½ miles,) to two miles west of Kirkpatrick's, on the Milledgeville road. This will be the most difficult and expensive section on the whole line. Passing from Verdery's by Clyatt's, and Captain Beal's Mills, we ascend the valley of Butler's creek to its head,

rising in the last 3 9-100 miles 118 51-100 feet, 44 4-10 feet per mile, with a maximum depth of cutting of 35 feet. Much time was spent by myself and party in our examinations about the head of Butler's creek. A line passing up Welch's Branch was tried, and not less than five or six different routes examined, and for some time I despaired of being able to ascend from the valley of the Savannah without the aid of stationary power; but at length, by crossing a narrow and low part of the ridge, between Butler's creek and the Uchee, and crossing round under the breaks of the latter creek, I was able to obtain a route, which though circuitous and expensive is highly satisfactory in affording a location for locomotive power.

It would be well that further examinations be made for a route passing out of the head of Spirit creek, and also out of some of the head branches of the Uchee, into which we must necessarily partially descend. Although in this location the adoption of stationary power would afford a saving in the first cost, yet I have no question as to the propriety of incurring the additional expenditure necessary in avoiding it.

## ESTIMATE.

253,078 cubic yards excavation and embankment, at 17 c.	\$43,023 26
223,666 cubic yards excavation and embankment, at 18 c.	40,250 99
205,765 cubic yards excavation and embankment at 15 c.	30,864 75
High truss or bridge work across hollow of Uchee.	10,000 00
10 miles of construction, with iron complete, at \$4,134 80-100 per mile.	41,348 00
34 miles construction at \$3,433 20-100.	12,016 20
Clearing and grubbing, at \$150.	2,025 00
3 turnouts at \$600.	1,800 00
Houses for attendants.	1,500 00
Culverts and road bridges.	2,000 00
	\$194,837 20
Add 10 per cent. for contingencies.	18,483 72
Amount.	\$203,320 92

## SECTION NO. III.

Embracing Sweetwater, extending west 11 miles, and ending at 38 miles from Augusta.

This section, by the route surveyed, and on which the estimate is predicated, crosses the valley of Sweetwater about one mile north of the Milledgeville road; but I am convinced that the profile could be rendered more favorable, and a saving in distance effected, by heading the depression, and passing by the White oak camp ground, nearly on the old tobacco road. I feel confident that a steeper graduation than 1 in 150 will not be necessary on this route.

## ESTIMATE.

449,480 cubic yards excavation and embankment at 16 cts.	\$71,916 80
7 miles construction with iron complete at \$4,134 80.	28,943 60
4 miles construction at \$3,433 20.	13,732 80
Grubbing and clearing at \$130.	1,430 00
Culverts and road bridges.	1,900 00
2 turnouts at \$600.	1,200 00
Houses for attendants.	1,000 00
	120,123 20
Add 10 per cent. for contingencies.	12,012 32
Amount.	132,135 52

## SECTION NO. IV.

Twelve miles long, passing within 3½ miles of Warrenton, ending at 50 miles from Augusta.

This section is generally favorable, the average depth of cutting and filling being several feet less than in either of the preceding sections. The line, in following the direction of the ridge, has 8 curves in the distance of 12 miles, none however of a less radius than 3000 feet. The growth of timber continues to be pine to the end of the section, the soil on the surface light and easy of excavation.

ESTIMATE.

258,765 c. yds. of ex. and emb't. at 12 c.	\$31,051 80
7 miles construction ironed complete at \$4,134 80 per mile.	28,943 60
5 miles of construction at \$3,433 20.	17,166 00
12 miles grubbing and clearing at \$150.	1,800 00
Culverts and road bridges.	2,900 00
2 turnouts and houses for attendants.	2,200 00
	84,061 40
Add 10 per cent.	8,406 14
Amount.	\$92,467 54

SECTION NO. V.

This section, 12 miles in length, terminates at 62 miles from Augusta, and 4 miles east of Crawfordsville. The average depth of excavation and embankment is 5 33.100. The steepest grade is 1 in 200. Maximum height of embankment, 21 feet, and of excavation, for a short distance, 16 feet. The pine wooded region in this section is lost in a mixed growth, in which oak and chesnut predominate. In these 12 miles there are but 5 curves, of which the shortest radius is 3000 feet. The soil in the excavations will form a good foundation for plan No. 1.

ESTIMATE.

291,805 c. yds. of ex. and emb't. at 13 c.	\$37,934 65
7 miles construction complete at \$4,134 80	28,943 60
5 miles do. do. at \$3,433 20	17,166 00
2 turnouts.	1,400 00
2 houses for attendants.	1,000 00
Culverts and road bridges.	2,800 00
Grubbing and clearing at \$125.	1,500 00
	90,744 25
Add 10 per cent.	9,074 42
Amount.	\$99,818 67

SECTION NO. VI.

Beginning 4 miles east, and extending 8 miles beyond Crawfordsville, passing directly through that village, being 12 miles.

This section is the most favorable of any on the whole route, as regards the depth of cutting, and quantity of excavation and embankment. The maximum height of the latter being only 12 feet, and the former but 10 feet. The steepest graduation need not exceed 1 in 200, although 1 in 176 is adopted for a short plane on the profile. There are six curves on the line of location, all of easy radii, the shortest 3000 feet.

The soil is a stiff, red clay, which will afford a very solid foundation. The line passes through a highly cultivated and productive cotton region. The timber (oak and chesnut) is generally cleared off—however, it is probable that enough may be obtained, in convenient vicinity to the line, for the purposes of construction.

ESTIMATE.

175,043 c. yds. of ex. and emb't. at 10 c.	\$17,504 30
6 miles construction at \$4,134 80.	24,808 80
6 do. do. at \$3,433 20	20,599 20
3 turnouts and water stations and extra fixtures at Crawfordsville.	3,600 00
2 houses for attendants.	1,000 00
Grubbing and clearing.	1,200 00
	\$68,712 30
Add 10 per cent.	6,871 23
Amount.	\$75,583 53

SECTION NO. VII.

This section is 13 miles in length, and ends at 87 miles from Augusta, about 1 mile west of Penn's store. The profile is not unfavorable, although the expense of graduation considerably exceeds that of the preceding section. The curvature and planes of profile as favorable as heretofore. At 4 miles from the beginning of this section, the branch line passing through Greensboro commences.

The excavation will be in a hard clay, and rock may be obtained in the vicinity of the line.

ESTIMATE.

315,894 c. yds. ex. and emb't. at 13 c.	\$41,001 22
7 miles of construction at \$4,134 80.	28,943 60
6 do. do. at \$3,433 20.	20,599 20
2 turnouts and water stations with extra fixtures at Carlton's.	4,400 00
2 houses for attendants.	1,000 00
Culverts and road bridges.	1,700 00
Grubbing and clearing.	1,300 00
	98,944 02
Add 10 per cent.	9,894 40
Amount.	\$108,838 42

SECTION NO. VIII.

This section is 15 miles in length, ending at 102 miles from Augusta. The course is very circuitous, necessarily, in pursuing the ridge round the head of Big creek, the valley of which is so deep and broken as to be utterly impassable.

The line makes nearly a right angle in its direction at the Hon. W. H. Crawford's, turning in a radius of 3500 feet. The greatest depth of cutting which will be requisite on this section, will be about 17 feet, and 28 feet will be the maximum height of embankment.

A plane, rising 1 in 176, or 35 feet in a mile, will be the steepest rate of inclination.

ESTIMATE.

313,761 c. yds. of ex. and emb't. at 12 c.	\$39,220 12
8 miles of construction at \$4,134 80.	33,073 40
7 miles of construction at \$3,433 20.	24,032 40
2 turnouts and water stations.	1,400 00
2 houses for attendants.	1,000 00
Grubbing and clearing at \$125.	1,875 00
	100,605 92
Add 10 per cent.	10,060 59
Amount.	\$110,666 51

SECTION NO. IX.

This section, part of which is yet unlocated on the maps, extends from near Gen. Pope's, to Athens, a distance of 12 miles, ending at 114 miles from Augusta. A plane of 1 in 176 will be necessary in rising out of the valley of Shoal creek, after which, by crossing into the head of Trail creek, an easy descent may be obtained along the bed of that stream into the valley of the Oconee, striking the same above the present bridge at Athens. Rising from the river into town, the ground is favorable for an inclined plane.

ESTIMATE.

262,521 c. yds. ex. and emb't. at 13 c.	\$34,127 73
7 1/2 miles construction at \$4,134 80.	31,011 00
4 1/2 do. do. at \$3,433 20.	15,449 40
3 turnouts and water stations \$700.	2,100 00
Houses for attendants.	1,500 00
Bridge across Shoal creek.	1,800 00
Viaduct across the Oconee river.	10,000 00
Culverts and road bridges.	2,000 00
Grubbing and clearing.	1,300 00
Graduation drainage and construction of inclined plane.	15,000 00
	\$114,538 13
Add 10 per cent. for contingencies.	11,458 81
Amount.	\$126,046 94

Summary of the cost of a Railroad from Augusta to Athens:

Section No. 1.	\$103,169 94
Sec. " 2.	203,320 92
Sec. " 3.	132,135 52
Sec. " 4.	92,467 54
Sec. " 5.	99,818 67
Sec. " 6.	75,583 53
Sec. " 7.	108,838 42
Sec. " 8.	110,666 51
Sec. " 9.	126,046 94
Amount incl'g 10 p. ct. for contingencies.	\$1,052,047 99

Add for depositories and fixtures—

No. 1 at Augusta, say.	\$7,000 00
" 2 opposite Warrenton.	3,500 00
" 3 at Crawfordsville.	5,000 00
" 4 at Carlton's.	2,000 00
" 5 opposite Lexington.	3,500 00
" 6 at Athens.	7,000 00
Stationary engine and fixtures.	12,000 00
	40,000 00
Amount.	\$1,092,047 99

We omit the details of the Sections and give the GRAND SUMMARY.

Cost of railroad from Augusta to Athens.	\$1,092,047 99
Cost of western branch lines to Madison and Eatonton.	513,744 71
Total, exclusive of machinery.	\$1,605,792 70
The above amount may thus be divided:	
Cost of the main Union track, from Augusta to Carlton's, 78 miles.	\$763,996 13
Cost of the branch from Carlton's to Athens, 36 miles.	328,051 87
Cost of the branch from Carlton's to Tompkins's, 25 miles.	329,249 10
Cost of the branch to Madison, 12 1/2 miles.	114,353 03
Cost of the branch to Eatonton, 7 1/2 miles.	70,142 58
	\$1,605,792 70

Add for machinery—	
10 large English freight engines, at an average of \$6,000.	\$60,000 00
250 freight cars, at \$300.	75,000 00
6 English passenger engines, at \$5,500.	33,000 00
18 carriages, at \$600.	10,800 00
Tools and fitting up workshops, and duplicates of machinery.	26,000 00

Grand total amount. \$1,810,592 70

It has been my desire, in making the foregoing estimates, to put every thing at its highest valuation, that no disappointment may hereafter ensue, from an excess in the expenditure over the contemplated cost. I have endeavored to guard against a dangerous practice, too often pursued, of misleading the public mind in the estimates; the consequence of framing the same rather in the spirit of sanguine expectation, than from the results of experience, and the dictates of impartial judgment.

While I am sensible that the cost will, in all probability, fall within the amount in many items of the estimate, yet, as the contingencies are numerous on a work of this kind, and unexpected difficulties may occur, I do not think that I have exercised more than a proper caution in this respect.

It scarcely enters into the province of the engineer to furnish statements regarding the revenue and statistics of a work of this nature. The direction have probably much better sources of information than myself, for forming a correct judgment on this important subject. However, as the estimate of the income involves considerations arising from the expense of transportation, as well as the wear and tear of machinery and repairs of the road, an estimate of this nature from the engineer may be of some service in determining the probable nett revenue of the work.

As a portion of the cotton, which now finds a market in Macon, will unquestionably take the route of the railroad to Augusta, we think we may safely calculate on taking from Athens, Madison, Eatonton, and the intervening points, Greensboro, Crawfordsville, Lexington, Warrenton, &c.: 150,000 bales, at \$1. . . . . \$150,000 00

Transportation of up freight, equal to the above, and 33 1/3 per cent. over. . . . . 200,000 00

Passengers, equal to 100 per diem, on all the routes taken, 110 miles, including way passengers. . . . . 200,750 00

Transportation of mails, and various downward freight, other than cotton. . . . . 25,000 00

Amount. . . . . \$575,750 00

To do the business of the road, about 16 engines would be necessary, of which 10 would be constantly in use. The following arrangement might be adopted with the passenger engine: One to leave Athens, and one to leave Madison at about the same time in the morning. The engine with the passengers from Madison would proceed to Eatonton in time to receive the great western mail and passengers, which would be conveyed by the same engine through

Greensboro to Carlton's, a distance by this route of 54 miles. Here this locomotive would meet the engine from Athens, which would have travelled 36 miles.

The train of cars from the north and west would now be united in one, and taken by a third engine to Augusta.\*

The engines from the west and Athens would then remain at this station until the arrival of the Augusta locomotive, when that from Athens would proceed to Madison by way of Eatonton, leaving at the latter place the western mail and passengers, and that from Madison would go on to Athens.

Thus the daily service of each engine would not exceed 90 miles; those on the Athens and western branch line would run 90 miles; that on the main line to Augusta, would travel 78 miles.

In this distribution of the labor of the locomotives, the amount performed by each would not exceed that which it would be capable of accomplishing with ease and certainty. This would require, therefore, the constant use of four locomotives, two on the union line, and two on the several branches. To provide six English passenger engines would be an abundance, allowing for accidents, and occasional repairs of those in use.

The engines for freight should be made of great power, capable of carrying from 500 to 1000 bales of cotton.

On a road built on the plan of the Georgia railway, with permanent embankments, a rate of 10 or 12 miles an hour, with the freight engines, may be allowed. As stoppages, taking in fuel and water, delivering and receiving freight, &c., will occupy considerable time, and as steep rises at the head of Butler's creek and on the branch lines, may cause some detention, the freight engines may not perform the trip in the winter season in less than 1½ days.

One engine with freight might leave Madison, Eatonton and Athens every other day, and meet at Carlton's, where a daily departure would be made for Augusta, and likewise from Augusta for Carlton's; this arrangement would require the constant employment of 5 engines, that is, 2 on the main and 3 on the branch tracks. But as, at certain seasons, the exigencies of business might require a greater number of engines, so as to leave each of the terminating points daily, and as provision ought to be made for every extent of business, as well as against every contingency of accident, &c., we will assume that 10 freight engines may be necessary. There will be, by the arrangement we have mentioned, 4 passenger and 5 freight engines in daily use.

Allowing for all wear and tear of engines and cars, expense of oil, fuel, water stations, attendants, engineers, &c., we may put cost of running each engine at \$16 per diem. . . . . \$52,560 00  
27 supervisors of road and keepers of turnouts. . . . . 9,720 00  
Expense of hands at the depositories and repairs of the road, &c. . . . . 25,000 00  
Agents and collectors at the various depositories, with assistants, &c. . . . . 9,000 00  
3 general superintendents. . . . . 3,000 00  
1 engine at the inclined plane, with wear, tear, and attendants. . . . . 4,380 00

\$103,660 00  
Add for workshops, and contingencies. . . . . 9,366 00

Which amount. . . . . \$113,026 00  
Deduct from. . . . . 575,750 00

Leaves. . . . . \$462,724 00  
As a net amount of income, equal to 26 per cent. on the capital invested.

\* Passengers for Augusta might remain at Tompkins to breakfast, while the engine went to and returned from Eatonton.

I consider the above result entirely derivable from the present work, as contemplated, without taking into view any additional revenue from those extensions of the road into Tennessee, and west from Madison or Eatonton, which will be the almost inevitable consequence of the completion of the Georgia railroad. The receipts of the South Carolina railroad, in a short period, will probably average 12 or 1500 dollars per diem; as upwards of 1000 dollars have lately been frequently taken in the day, although the amount of cotton sent upon the road, up to this time, does not exceed 8000 bales, as the high river during the whole of this season, and long drayage, and heavy tolls across the Savannah bridge, have prevented any cotton of consequence being sent by way of the railroad from Augusta to Charleston.

The fact, that it costs the planter at Madison, Eatonton and Athens about 3 dollars per bale, nearly one tenth part of the value of his crop, to take it to Augusta, places the certainty of the transportation of this grand staple on the railroad beyond a question. The same fact applies also to up freight, which costs in wagons about \$1½ per 100 wt. per 100 miles.

The circumstance, indeed, that there is no competition of any nature to be feared in the operations of this railroad; that not even a good turnpike exists to offer a feeble contention with it; that the roads, at the very season when the crops are ready for transportation to market, are almost impassable—presents a combination of facts, which speaks in the most encouraging language to the promoters of this enterprise to persevere in their undertaking.

But it is not to the amount of the yearly dividends on the capital invested, however flattering the prospect, that the planter is to look for his chief reward from the work. It is from the increase in the worth of his real estate, in the doubled, trebled, and quadrupled value of which, he will find himself suddenly invested with fortune, as if by magical influence. The tide of emigration will be arrested, as it sweeps over the country in its westward course, and the people learn to be satisfied in the enjoyment of a new prosperity, and the attendant comforts, and refinements secured to them in their "father land."

If we were asked to define one of the chief sources of the wealth and prosperity of the people of America, we should say it was the increase in the value of real estate. And wherever we see the greatest industry and enterprise among the people, evidencing itself in the improvement of property, and in the establishing of those grand channels of communication, which are the very arteries of the agricultural, as well as of the commercial system, we plainly perceive the stronger indications of solid wealth and growing prosperity.

It is perhaps a fortunate circumstance that the south has not hitherto embarked more extensively in those great schemes of internal improvement, in the accomplishment of which, northern capital and industry, for many years past, have been so forcibly directed.

Treading upon the footsteps of our neighbor, we may avoid her blunders, and take warning from the beacons of misdirected enterprise.

As I have thus ventured to stray from the subject matter of my report, I will take occasion to offer a few additional remarks, in which I hope your patience will indulge me.

Turning our eyes upon the north, we behold a country, naturally rugged and barren

in comparison with our own, highly cultivated, wealthy, and populous, filled with the spirit of active industry; the restless and unsatisfied march of improvement manifesting itself in every department of the useful arts; an immense tide of commerce pouring itself through a thousand fruitful channels of inland transportation, wherever it flows, like the floods of a mighty river, leaving a deposit of wealth upon its way.

It has been urged that there exists in the domestic institutions of the south an opposing evil, which prevents the action of this spirit, and deprives us of the benefits which result from its exercise. But where is the foundation for the assertion?

There is in the Agricultural interest of the south a real and substantial wealth, which, being widely diffused, and generally enjoyed, is the source of security and ease among the people, rendering them less disposed to speculative enterprises, which require the withdrawing of capital from an always safe and profitable investment.

That the ability to execute exists, and that there is a good sense among the people which will point out to them the vast and inestimable advantages, to themselves, and to the country, which will reward their efforts, cannot be questioned. Let them once awake to a full sense of the importance and value of these undertakings—let them take the necessary measures to empower their construction, embarking with zeal in their prosecution, and foreign capitalists, lured by the valuable privileges of the charters, and the rich harvest of revenue to be secured, will gladly lend a helping hand in furnishing the necessary means for their accomplishment.

Our great staple of production is, of all others, the best calculated, from its portability, and value, for railroad transportation. No doubt can be entertained, at this time, of the fact, that railroads may be constructed at the south, owing to the mildness of the climate, the clearness of the land, the abundance of materials, and the peculiar labor, at a cost, vastly less than is necessary at the north.

Complete this Union Georgia railroad, and we shall have 296 miles of railroad accomplished in South Carolina and Georgia, at a cost of \$2,700,000—less than one half the cost of the 35 miles of the Liverpool and Manchester railway, about double the cost of 16 miles of the Albany and Schenectady road, and not more than that of the 14 miles of the Chesapeake and Delaware canal.

The works which we have named are of the most expensive class—and, on the same plan of graduation, would doubtless have cost nearly as much in a southern climate. But at the same time we contend that, weighing the results produced, will the capital expended, the balance is vastly in favor of the south.

In no works of the north, nor in any that we are aware of in Europe, will the same capital afford the amount of nett revenue, which may be obtained when judiciously expended in these southern enterprises.

Not only may an immediate and large revenue be expected, but, extending over so wide a section of territory, these works embrace the prospect of a vast addition to their income, from an improvement in the agricultural condition of the country through which they pass, and from the ultimate extensions which will necessarily ensue.

That a communication between Charleston and the valley of the Mississippi, by means of an extension of the Athens branch of the Georgia road, will be accomplished, is as certain as that the Georgia railroad will be executed. It needs no extraordinary

foresight to perceive the splendid results which will attend the accomplishment of this great work.

It will not only add an immense value to the stock of the original roads, but will be productive of incalculable benefit to the whole country.

The productions of the fertile west will find a profitable market in the south Atlantic states, flooding the land with almost every article of domestic consumption, for not only will her overflowing granaries pour their rich stores into the cotton growing sections of the south, but manufactories and every species of domestic industry, encouraged by the facility of intercourse with the seaboard, by the abundance of water power, and the cheapness of labor, will spring up in the west, as well as in every section of the south where natural advantages are enjoyed.

But, not only from a reciprocity of commercial intercourse, will the south and west derive a mutual benefit, but the over-production will find a ready market for exportation in Charleston, which, from her commanding position and peculiar advantages, should she still continue true to herself, and actuated by the same bold spirit of enterprise which has lately given a new impulse to her prosperity, must eventually become the great mart of southern Atlantic commerce. The lines of railroad soon to be in course of construction, in addition to those already completed, embrace two-thirds of the whole distance between the Mississippi and the Atlantic.

The eye of the patriot cannot but dwell with satisfaction on the prospect presented in the accomplishment of this grand chain of commercial intercourse.

Intersecting the great valley of the Mississippi below the junction of all its important tributaries, arresting the rich freights of the Tennessee on their great northern tour, embracing in multifarious extensions the interest of the whole interior, it is almost beyond the imperfect efforts of the imagination, to perceive the full extent of the results of this great work, which is to revolutionize the transportation, and affect more or less the whole agricultural and commercial interest of the west.

An amount of \$3,000,000, in addition to the capital already embarked in these enterprises, will probably accomplish this grand object, and secure a trade to the south Atlantic seaboard infinitely more valuable than that for which those great rival works, the Pennsylvania canal, the Baltimore and Ohio railroad, and the Chesapeake and Ohio canal, with an aggregate capital of \$50,000,000, are now contending.

With these prospects, and these facts before them, is it possible that this feasible undertaking, for the accomplishment of which such comparatively insignificant means are necessary, can long appeal, in vain, to an enterprising people, for the amount of capital necessary to carry it into execution?

There can be but one reply to this interrogatory, even were we ever so doubtful of the alacrity of those, who have so large an interest at stake, to embark in it. It is known that many English, and other foreign capitalists, are now turning their attention to the south, as embracing from the solid and substantial basis of its agricultural wealth, and from the wide and virgin field for speculative enterprise which it opens before them, advantages for the investment of capital which are entirely unknown to any other country.

In conclusion, we have our prosperity in our own hands, and with that wide extent of territory, which is one of the greatest

blessings which characterizes our country, united with an enterprising spirit, establishing the means of ready intercommunication and commercial exchanges,—diffusing the lights of education among the people,—the south may, in a few years, secure in her own enviable and increasing prosperity, smile at the disappointed predictions—alike, of mistaken friends and fanatical revilers.

With my best wishes, gentlemen, for the complete success of the noble and patriotic enterprise in which you have embarked with so determined a spirit, and with such flattering prospects before you,

I have the honor to be,

With the highest respect, &c.

ANDREW ALFRED DEXTER,  
Civil Engineer.

Augusta, May 29, 1834.

*Statement of the party employed under the Chief Engineer, in the duties of the survey.*

George B. Lithgow,\* of South Carolina, assistant engineer, head of party No. 1.

D. W. Johnson and G. V. B. Williams, of South Carolina, rodmen; James W. Harris, of North Carolina, topographical delineator.

Two chainmen and one axeman.

John L. Cole,† of Charleston, S. C., assistant engineer, head of party No. 2.

S. F. A. McDowell, of Columbia, S. C., rodman; Wm. Henry Austin, of Missouri, surveyor and topographical delineator.

Two chainmen and one axeman.

*Remarks.*—The time occupied in the field labors was three months—from November to February—the season was remarkably inclement and unfavorable. Difficulties peculiar to the country rendered the task unusually burdensome and disagreeable. The heavy rains and snows made the roads nearly impassable, so that it was with difficulty a six horse team could convey our baggage wagon, containing the tents, camp equipage, luggage, provisions, instruments, &c., of the two parties from place to place. During a week, when incessant rains confined the party to the tents, they were greatly indebted to the kindness of Mr. Henry Pope, of Oglethorpe, for many polite attentions, for which, at the request and in the name of the whole party, I tender him their grateful acknowledgments.

To the untiring industry and perseverance of Messrs. Cole and Lithgow, and the gentlemen assisting them, I am indebted for the rapid prosecution and timely completion of the survey, embracing 170 lineal miles, and I should do injustice to my feelings, were I to neglect this opportunity of bearing testimony to their ability and professional merit. In protracting the maps and profiles, making out the estimates, &c., which occupied between three and four months, I was assisted by Messrs. Wm. Henry Austin and James W. Harris, and occasionally by Mr. A. Mezzyk, McCaine.

\* Since appointed superintending engineer of the western division of the South Carolina railroad.

† Since appointed superintending engineer of the eastern division of the South Carolina railroad.

*Experiments on the Transverse Strength and other Properties of Malleable Iron, with Reference to its Uses for Railway Bars.* By PETER BARLOW, F. R. S., Cor. Mem. Inst. of France; of the Imp. and Roy. Acad. of Petersburg and Brussels, etc.

In order to render some remarks and observations in the following pages intelligible to the general reader, it will be necessary to state a few particulars relative to the circumstances which gave rise to the experiments, and to the appearance of them in their present form.

The Board of Directors of the London and Birmingham Railway Company, desirous of carrying on the great work in which they are engaged on the most scientific principles; and, if possible, to avoid the enormous cost of repairs which has attended some large works of a similar description, offered, by public advertisement, a prize of one hundred guineas "for the most improved construction of railway bars, chairs, and pedestals, and for the best manner of affixing and connecting the rail, chair, and block, to each other, so as to

avoid the defects which are felt more or less on all railways hitherto constructed;" stating, that their object was to obtain, with reference to the great momentum of the masses to be moved by locomotive steam engines on the railway,

1. "The strongest and most economical form of rail.

2. "The best construction of chair.

3. "The best mode of connecting the rail and chair; and also the latter to the stone blocks or wooden sleepers. And that the railway bars were not to weigh less than fifty pounds per single lineal yard."

In consequence of this advertisement, a number of plans, models, and descriptions were deposited with the company within the time limited by the advertisement; and others were received afterwards, which, although not entitled to the prize, were still eligible to be considered with reference to their adoption for trial. On the 24th of December last, a resolution was passed at a meeting of the Directors, appointing J. U. Rastrick, Esq., of Birmingham, N. Wood, Esq., of Newcastle, Civil Engineers, and myself, to examine and report upon the same, with a view to awarding the prize; and, at the same time, we were requested to recommend to the Directors such plans, whether entitled to the prize or not, as might be considered deserving of a trial. We met accordingly in London; and, after a long and careful examination of the several plans, drawings, and written descriptions, recommended those we thought entitled to the prize, which was awarded by the Directors accordingly. But that part of our instructions which required us to recommend one or more rails for trial, we were unable to fulfil to our satisfaction, principally for want of data to determine which of the proposed rails would be strongest and stiffest under the passing load, and whether permanently fixing the rail to the chair, for which there were several plans, would be safe in practice. No experiments on malleable iron having ever been made bearing on these points, it was considered better to leave the question unanswered, than to recommend, on no better ground than mere opinion, an expensive trial, which might ultimately prove a failure.

Seeing, however, how desirable it was that such data should be obtained, I proposed to the Directors to undertake a course of experiments, which should be conducted on a scale adequate to the importance of the subject, provided my Lords Commissioners of the Admiralty would allow me the conveniences His Majesty's Dockyard at Woolwich afforded, (which I had every reason to hope they would do, from the liberality I had so frequently experienced from that Board on similar occasions,) and that the Directors would supply such instruments, materials and workmanship, as might be required for the purpose.

The Admiralty, as I had anticipated, immediately granted my request; and at a public meeting of the proprietors, held at Birmingham, a resolution was passed embodying my proposition. I accordingly commenced, and continued my experiments, till I had elicited such facts as I thought necessary; and having arranged them, as in the following pages, I delivered the results, with a report founded upon them, to the Secretary of the London Committee, to lay them before the Board; which being done, the Directors were pleased to express their high approbation of my labors, and

their wish that the results should be made public. I have been, therefore, induced to print them in their present form, introducing only such foot notes as seemed to me necessary to render the subject intelligible to the general reader. I have given, also, in addition, the solution of one or two equations, which, to avoid embarrassing the report, had been suppressed, the results only having been stated.

Such are the circumstances under which the following pages have been submitted to the press; and they will serve to account for the form in which the subjects are arranged, which would probably have been different, if the publication in a separate work had been anticipated in the beginning. I have no doubt, however, if the facts elicited be found useful, the form and arrangement will be considered matters of secondary consideration.

#### PRELIMINARY REMARKS.

It is only since the very general adoption of railways in this country, that malleable iron has been employed to any extent to resist a transverse strain, and writers who have undertaken experiments to investigate the strength of materials, have hitherto passed over those inquiries which relate to the transverse strength of this metal.\* The extraordinary extent, however, to which malleable iron is now applied to resist transversely a passing load, renders it highly essential that this resistance, and its other properties, should be fully investigated; for it is obvious, that every additional weight of metal, beyond that which is requisite for perfect safety, is not only uselessly, but injuriously employed, it being generally admitted that bars beyond a certain weight cannot be so well manufactured as those of less dimensions; and it is no less certain, that by a proper disposition of the metal in the sectional area of the bar, (which depends on the data in question,) a greater strength may be obtained with a given weight of iron, than with a greater weight injudiciously disposed. Under these impressions, the following experiments have been undertaken, and to these inquiries only they have been directed; and I am not without hope that on those points they may be found useful.

Before, however, proceeding to these experimental researches, there is one subject, rather of investigation than of experiment, on which I have thought it necessary to bestow some attention, it being one on which the opinions of practical men are much divided; this is, the comparative advantages and disadvantages of what is called the fish-bellied rail, and that with parallel edges.

#### Examination of the Properties, Curvature, and Resistance, of the Fish-bellied Rail.

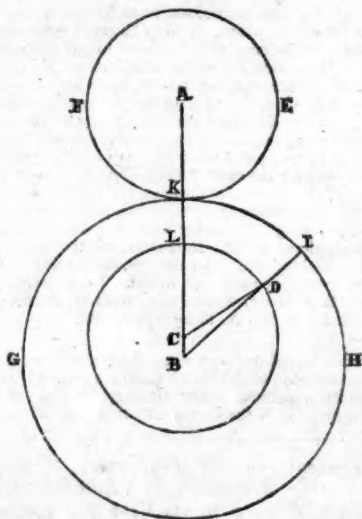
It is well known, both as a theoretical and mechanical fact, that if a beam be fixed with one end in a wall, or other immovable mass, to bear a weight suspended at the other end, the longitudinal section of such a bar (its breadth being uniform) should be a parabola; because, with that figure, every part of it will be strong in proportion to its strain, and thus one-third of the material may be saved. This form of construction

\* Some few experiments on the transverse strength of malleable iron have certainly been made. I have given three in my Essay on the Strength of Materials. Mr. Hodgkinson has also glanced at this subject in his valuable paper of Experiments on Cast Iron, published in the Memoirs of the Manchester Philosophical Society, and M. Duleau has treated of the subject in his "Essai Theorique et Experimental," &c.; but those points of greatest importance connected with the application of this metal to the purposes of Railways have never formed the subject of inquiry.

is frequently adopted in the case of cast-iron beams in buildings, and with great advantage, as thereby one-third of the material is saved, while the strength is preserved, and the walls of the building relieved from a great unnecessary weight.

This seems to have led to a somewhat similar principle of construction in what is called the fish-bellied rail; and the question here is, with what advantage? In the first place, it is to be remarked that the figure, which theory requires in this case, is not, as in the preceding, a parabola; for, as in the transit of the locomotive, every part of the bar has, in succession, to bear the weight; and as the strain on any part of a beam supported at each end, and loaded in any part of its length, is as the rectangle of the two parts,—the strength being as the square of the depth,—it follows that the square of the depth ought to be every where proportional to the rectangle of the two parts, which is the known property of a semi-ellipse. The bar, therefore, in theory, ought to be a semi-ellipse, having its length equal to the transverse diameter, and the depth of the beam for its semi-conjugate, and there can be no doubt, that such a figure would be, to all intents and purposes, as strong in its ultimate resistance as a rectangular beam.

But it is difficult to obtain this figure correctly in malleable iron, and many of what are called fish-bellied rails are but bad approximations to it, although others differ from it but slightly. The following is the general mode of manufacture.



EF is the section of an iron roll; GH the section of another. This latter being hung on a false centre C, is turned down, leaving a groove of varying depth as shown in the figure. The cylinder GH being now again placed on its proper centre B, the bars are introduced between the two rolls at KL; and as the iron passes through, it acquires the variable depth shown in the lower roll. The inner circle, or bottom of the groove, is generally one foot in diameter, and the upper three feet in circumference; consequently, the figure is completed in a length of three feet, and there are commonly five such lengths in a bar. The computation of the ordinates to the curve thus formed is by no means difficult; for, calling the radius of the cylinder  $CD=r$ , and the distance of the centres  $BC=d$  and  $x$  any angle LCD, we find the ordinate.

$$ID=BI-\sqrt{(r^2+d^2-2rd \cos. x.)}$$

And by this formula the ordinates of the curves have been computed for two different fish-bellied rails; the extreme depth in both

being five inches, but the lesser depth in one three inches, and in the other three and three-quarter inches, the latter being that proposed by Mr. Stephenson for the London and Birmingham Railway. The ordinates are taken for each  $10^\circ$ , or for every inch of the half-length, and in the last column are given the ordinates of the true ellipse.

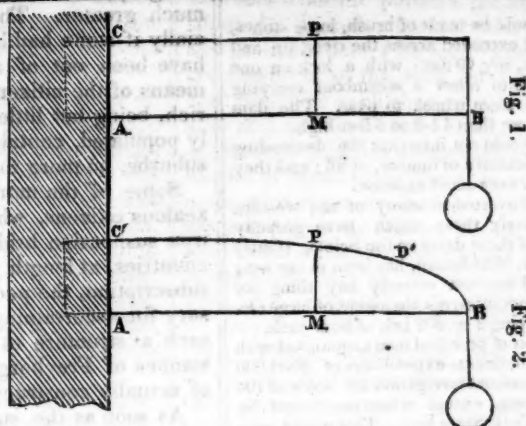
TABLE OF ORDINATES.

ABSCISSES.		Ordinates in Fish-bellied Rail. Greatest depth 5 in. Least do. 3"	Ordinates in Mr. Stephenson's Rail.	Ordinates in the Ellipse.
Deg.	In.			
0 =	0	3.00	3.75	0
10 or	1	3.01	3.76	1.64
20 "	2	3.05	3.78	2.29
30 "	3	3.12	3.82	2.76
40 "	4	3.21	3.88	3.14
50 "	5	3.31	3.95	3.46
60 "	6	3.44	4.04	3.72
70 "	7	3.59	4.14	3.96
80 "	8	3.75	4.23	4.16
90 "	9	3.92	4.34	4.33
100 "	10	4.09	4.45	4.48
110 "	11	4.27	4.55	4.61
120 "	12	4.43	4.66	4.71
130 "	13	4.59	4.75	4.80
140 "	14	4.72	4.84	4.87
150 "	15	4.84	4.91	4.93
160 "	16	4.93	4.95	4.97
170 "	17	4.98	4.99	4.99
180 "	18	5.00	5.00	5.00

We see by this table, (although it is impossible, with any proportions or degrees of eccentricity, to work out a true ellipse by this method,) that we may approximate towards it sufficiently near for practical purpose, as Mr. Stephenson has done; while, on the other hand, without due precaution, we may so far deviate from it as to render the bar dangerously weak in the middle of its half-length.

As far as relates to ultimate strength, there can be no doubt Mr. Stephenson's rail is equal to that of an elliptic rail, and consequently to that of a rectangular rail of the same depth; but there is still an important defect in all elliptical bars, viz., that although this form gives a uniform strength throughout, it is by no means so stiff as a rectangular bar of a uniform depth, equal to that of the middle of the curved bar, and it is the stiffness rather than the strength that is of importance; for the dimensions of the rail must so far exceed those which are barely strong enough, as to put the consideration of ultimate strength quite out of the question. The object, therefore, with a given quantity of metal, is to obtain the form least affected by deflection; and unfortunately the elliptical bar, although equally as strong as the rectangular bar of the same depth, as far as regards its ultimate resistance, is much less stiff. This will appear from the following investigation.

The deflections which beams sustain when supported at the ends and loaded in the middle, is the same, as the ends would be deflected, if the beams were sustained in the middle, and equally loaded at the ends, each with half the weight; and the law of deflection is the same in the latter case, as when the beam is fixed in a wall and loaded at its end, although the amount is greater. At present, however, our inquiry is not the actual, but the relative deflection in two beams, one elliptical, and the other rectangular, of the same length, and of the same extreme depth—the breadth and load being also equal in each. It is quite sufficient, therefore, to consider the corresponding effects on two half-beams, each



fixed in an immovable mass, as represented in the preceding figures.

Now, in the first place, the elementary deflection at C is the same in both beams, because the lengths and loads are the same, and the depths at C A equal; but the whole deflection at any other point P, will be directly as  $MB^2$ , and inversely as  $MP^3$ . If, therefore, we call  $MB = x$ , and  $MP = y$ , the sum of all the deflections in the two

beams will be  $\int \frac{x^2}{y^3} dx$ ,  $\Delta$  being the sine of deflection at C. But in fig. 1,  $y$  is constant and equal to  $d$ , (the depth,) while in the latter,

$$y = \frac{d}{l} \sqrt{(2lx - x^2)}$$

$l$  being the semi-transverse or length, and  $x$  any variable distance.

The whole deflections, therefore, in the two cases, are,

Fig. 1:—

$$\text{Deflection} = \int \frac{x^2}{d^3} dx \Delta = (\text{when } x = l) \frac{1}{3} \frac{l^3}{d^3} \Delta$$

And in fig. 2:—

$$\text{Deflection} = \int \frac{x^2}{\frac{d^3}{l^3} (2lx - x^2)^{\frac{3}{2}}} dx \Delta = (\text{when } x = l) \frac{41}{3} \frac{l^3}{d^3} \Delta$$

The deflections, therefore, in the two cases are, with the same weights, as 33 to 41,\* or nearly as 3 to 4, a result fully borne out by subsequent experiment. It is to be observed, also, that this investigation applies only to the deflection when the weight is in the middle of the bar, and that it would be much greater in comparison with the parallel rail towards the middle of its half-length.

This want of stiffness is, I should imagine, but badly compensated by the trifling saving of metal thus effected; for I find that an addition of little more than four pounds per yard, would convert this rail into a rectangular one of the same depth, which would have one-third more stiffness at its middle point, and probably one-half more a little beyond the middle of the half-lengths. I am aware, objections are made to rectangular bars having so much depth of bearing in their chairs, and this may be a practical

\* Experiments have been made from which it has appeared that the fish-bellied rail was stiffer than the parallel rail, which is certainly possible, if the parallel rail be of inferior metal or of injudicious figure; but it is mechanically impossible if the parallel bar be made of the figure here assumed.

defect, on which I shall offer no opinion; at all events, it is well to estimate properly both evils, and then to choose the least.\*

Having thus satisfied myself on the nature of the fish-bellied rail, I proceeded with my experimental inquiries, which I have divided into the following sections:

1. To determine the extension of an iron bar of given area, under different degrees of tension; and hence the force with which the same bar will contract with a given reduction of temperature.

2. The comparative resistance of malleable iron to extension and compression, and thereby the position of the neutral axis.

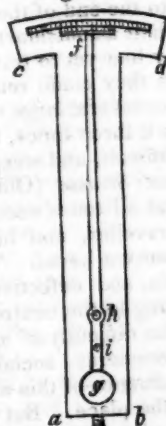
3. The figure of the area of section, which gives the greatest strength with the same quantity of metal.

4. The strains which bars of given sections are capable of sustaining without injury to their elastic power.

Experiments to determine the quantity which iron extends under different degrees of tension.

With a view to this inquiry, an instrument was made as in the annexed

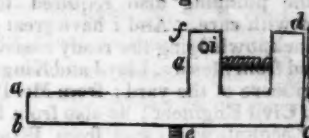
Fig. 1.



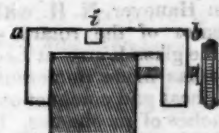
sketch.  $abcd$  is a piece of brass, about one-fifth of an inch thick, having an are at top, divided into tenths of inches;  $hfg$  is a hand, with a vernier, turning freely on a centre  $k$ ; and  $i$  is a steel pin, about half-an-inch long, projecting perpendicularly forward; the distances  $fh$  to  $ki$  being as 10 to 1.  $e$  is a small end with a screw, for the purpose described below.  $abcd$  is another

\* It will be seen in a subsequent page, that by introducing what is called a lower web, that weight for weight, a parallel rail may be made as strong as the fish-bellied, with only an additional depth in the chair of three-quarters of an inch.

Fig. 2.



piece of brass, having a screw  $e$ ;  $f$  is a piece working in a dove-tail, adjustable for position by the screw  $g$ , and  $i$  is another steel pin projecting forward.  $ab$  is an iron



saddle-piece, with a set screw  $s$ ; and at  $i$  a hole is tapped to receive the screw  $e$ , fig. 2; and another saddle piece, exactly like this, is made to receive the screw  $e$ , of fig. 1.

The iron bars intended to be experimented on were made of the annexed form, about ten feet in length; these, by proper bolts and sheekles, were fixed at  $a$  and  $b$  in the proving machine;\* the two saddle pieces were then fixed on at the exact distance of 100 inches; the instruments, fig. 1 and 2, screwed into their respective saddle pieces, and a light deal rod hung, by means of two small holes formed in it, (also at the distance of 100 inches,) upon the two pins  $ii$ ; and then by means of the set-screw, fig. 2, the vernier of fig. 1 was adjusted exactly to zero. The pump of the hydraulic press was now put in action, and after one, two, or more tons pressure were on, according to the size of the bar, and every thing brought well to its bearing, the hand was again adjusted to zero, after which the index was read for every additional ton. Here it will be seen, that whatever the bar stretched between the two instruments, the lower pin of fig. 1 was drawn forward, and the index-end thrown back ten times that amount, consequently to ten times the actual amount of the quantity stretched.

It has been observed, that after one, two, or more tons strain were applied to bring every thing well to its bearing, the index was adjusted to zero, and its reading afterwards carefully registered as each additional ton was added.

The strain during the experiment was repeatedly let off, and the index was found to return to zero, till the strain amounted to about nine or ten tons per inch, when the stretching became greater for each ton, and the bar did not any longer regain its original length when the strain was removed, its elasticity with this tension being obviously injured.

These experiments required more attendance than it was possible for one person to give; the adjustment of the weights, the

\* The Lords Commissioners of the Admiralty having been pleased to allow me any facilities His Majesty's Dock-yard at Woolwich afforded for conducting these experiments on a proper scale, the proving machine here referred to is an hydrostatic press, constructed by Messrs. Bramah's, principally for the purpose of testing or proving the iron cables, before they are issued for service. It is an excellent machine of its kind, is capable of bearing a strain of 100 tons and is very sensible to a difference of strain of 1-8th of a ton.

reading and registering the index, required each the undivided attention of one individual; the pumping also required to be watched with care. And I have great pleasure in acknowledging the ready assistance I received from Messrs. Lloyd and Kingston, the Engineers of the yard; from Mr. P. W. Barlow, Civil Engineer; as also from Lieutenant Lecount, who came from Birmingham to witness and assist in the experiment.

(To be continued.)

**AERIAL STEAMBOATS.**—Some sixteen or eighteen years since, I passed a day at a tavern in Hanover, N. H. with Mr. Maury, the inventor of the rotary steam engine, used in the glass-house at Lechmere Point, and who has made numerous experiments on light, heat and combustion, and in various branches of mechanics. He stated that he should live to see the mail transported by carriages, propelled by steam, between our largest cities, and that I should live to see it carried in steamboats through the air. On expressing doubts of the practicability of the latter improvement, in the mode of transmitting intelligence, he went into a long argument to prove, that it was not only possible, but absolutely easy of accomplishment. It has been ascertained, he observed, that large weights can be elevated high above the earth, by balloons filled with air, lighter than that of the atmosphere. The first grand step, then has been securely taken, and it is only necessary to apply a power which shall give the balloon a horizontal motion, when a rudder can be applied to guide it, and this can be done by a steam engine, working paddle-wheels as in a steamboat on our waters, but each of the paddles to move on an axis so as to offer no resistance, after having struck the air in one direction. The balloon must be constructed in the form of a fish, or in other words, have length, and such a structure as will be most easily propelled and guided, while space is afforded for the machinery and passengers. He had estimated the requisite size of a steam aerial boat to sustain an engine capable of propelling it sixty miles an hour. After many details, this intelligent, ingenious, and sanguine gentleman, closed his remarks with this bold and prophetic declaration, "You, sir, if you live to the common age of man, will see aerial steamboats rise up out of our large cities every morning, like a flock of wild geese, and take their several directions to the various parts of the Union, laden with the mails and passengers."

Notwithstanding the doubts which are generally entertained of the ultimate benefit to be derived from balloon experiments, a very scientific man, many years since, did foretell the establishment of railroads, and may not be mistaken as to the aerial ocean being successfully navigated. It would not be more wonderful than was the first steamboat which the illustrious Fulton launched upon the Hudson, or the sight of the first locomotive, which sped like the wind from Liverpool to Manchester.—[Boston Atlas.]

**ALLEGANY RIVER.**—The convention which was held at Kittanning on the 18th inst. for the purpose of devising the best method of improving the navigation of the Allegany river, up to the New York Line, has induced many persons to examine the subject carefully, and the result is, the entire conviction of almost every one that it can be accomplished with certainty, and at a very small expense, comparatively. The plan which practical men and those who are acquainted with the stream think best, is that of dams and locks, so as to make a steamboat navigation at all times, except when obstructed by ice; and that interruption would not

continue, on an average, more than ten weeks in each year.

The dams should be made of brush, loose stones, and gravel; and extended across the river, up and down the stream, say 70 feet; with a lock on one side large enough to allow a steamboat carrying 100 tons, with a stern wheel, to pass. The dam should not be more than 4-1/2 to 5 feet high.

These dams would not interrupt the descending navigation, particularly of lumber, at all; and they can be made at a very small expense.

They have been tested in many of the western streams particularly those which have gravelly bottoms. One of these dams on the Sciota, (Ohio) belonging to a Mr. Musselman, has been in use near thirty years, and has cost scarcely any thing for repair, and does not interrupt the ascent of large Orleans boats, carrying 3 or 400 brls of flour each.

It is the opinion of practical men acquainted with the river, that a judicious expenditure of \$500,000 would give a steamboat navigation for boats of 100 tons, at all seasons, except when obstructed by ice, to the New York State line. This would open another channel of trade to the West, of vast importance; and connected with the Hudson and Erie Rail Road, or with a canal from Rochester to Olean, would furnish the city of New York with the most advantageous connection she ever can have with the vast country in the valley of the Ohio and its tributaries. Merchandise could, by this route, be delivered from the city of New York at the towns on the Ohio six weeks later in the fall, and six weeks earlier in the spring, than by any other route she can command, and at one third less expense.

Any one who will examine the map will see the immense advantages of this route for New York.—[Pittsburg Gazette.]

[From the London Mechanics' Magazine.]

#### DESCRIPTION OF THE FREYBURG SUSPENSION BRIDGE.

Translated from the German, by J. E. Terry, C. E.

The city of Freyburg, in Switzerland, is well known to most travellers for its remarkable locality, being seated partly in a deep and winding valley, watered by the river Saone, and partly on the adjacent high and overhanging cliffs. To arrive at the centre of the town, by the road from Berne, carriages were formerly obliged to descend the steep declivity of the Staalberg. On arriving at Bernegate, it seemed to travellers as if they had already got to the end of their journey, but great was their astonishment to be informed that they had yet to travel for half an hour before they could reach the city—to follow the several large windings of the river, cross it three times, then to ascend the long, difficult, and steep ascent called *Alt Brunnen Strasse* (Old Well-street), which was at all times enough of itself to dismay a traveller, and has proved the death of many a horse. The bad state of the roads, and defective plan of the streets leading to the centre of the city, increased the difficulty of approaching it. Industry, commerce, social life, all felt alike the influence of this almost isolated position of the place. But what could be done? The obstacles seemed insurmountable; the almost perpendicular cliffs on which the chief part of the town stands, seemed to mock the idea of forming a street through them of any tolerable degree of ascent; and had even this been possible, it would only have tended to increase the length of the windings. On the other hand, the idea of erecting a bridge, either of wood or stone, of a sufficient height to overcome the difficulty of the rugged ascents and descents, seemed too daring for contemplation, the height

being upwards of 150 feet, and the length much greater. The expense, too, especially if stone had been employed, would have been out of all proportion to the means of the citizens; for the city is not rich, being but little frequented, and thinly populated, containing, exclusive of the suburbs, no more than 9,000 inhabitants.

Some of the more public spirited and zealous citizens, who had heard of the iron suspension bridges erected in other countries, at length proposed to raise, by subscription, the pecuniary means necessary for ascertaining the applicability of such a structure to the natural circumstances of Freyburg, and, if practicable, of actually constructing it.

As soon as the subscription reached a suitable amount, several eminent engineers were consulted, and after examination of the plans of different competitors, M. Chaley, the famous French engineer, who erected the wire bridges at Beaucaire, Chaisey, and several other places in the south of France, obtained the preference. The contract agreed on with him on the 10th February, 1830, was to this effect: that he was to have, at different instalments, 200,000 (Swiss) francs, for the completion of an iron wire bridge; that the expense of the approaches on both sides, and the compensation to individuals for loss sustained in their property, should be defrayed partly by the subscribers and partly by the government; and that the contractor, M. Chaley, subject to certain conditions, should have the enjoyment of the produce from the tolls for 80 years. Some time afterwards, these conditions were considerably modified; it being agreed that M. Chaley's right to the tolls should be limited to 40 years, at the end of which time, the profits are to revert to the subscribers during 59 years, after which the toll is to cease, and the bridge to become the property of the canton, or common property.

The first general meeting of the subscribers took place on the 19th of March, 1830, when they appointed a committee of 10 members (afterwards increased to 20) to superintend the erection of the bridge.

Immediately after these arrangements, the necessary preliminary preparations were entered upon; but the political disturbances which broke out, in 1830-1, in France, and afterwards in Switzerland but particularly in the canton of Freyburg, had a most injurious influence on the undertaking—added to which, differences arose between the contractor and the committee, which tended greatly to retard the project. The general good will of the citizens, however, and the indefatigable zeal and activity of some of the leading members of the committee, re-called ere long the dormant project into life and activity. In March, 1832, the works were entered upon with great zeal, and the first stone of one of the porticos was laid, under the superintendence of the architects Kraser and Brugger. From that time the works were continued in every department without interruption; and, to facilitate their progress, a temporary

bridge was thrown over the river Saone, it being for the ease and advantage of the workmen to get from one side to the other without loss of time.

The finances of the company were all expended, however, long before the bridge approached to its completion. But though the funds were exhausted, the ardor and generous feeling of the subscribers and donors were not. Government, which, from the beginning, had given its particular sanction and protection to the measure, came once more to its assistance, by granting leave for the opening of a lottery, which produced to the company the sum of 80,000 francs.

The work was now once more renewed with vigor, and on the 9th of June, 1834, the subscribers had the gratification of seeing extended across the valley, the first of the numerous wires which form the two main ropes or supports of the bridge. Next followed the fixing of the subordinate suspension wires, and the laying down of the beams to form the foundation or flooring of the bridge. The latter mentioned operation took place, it might be said, in a magical manner. The inhabitants were not a little surprised to find at their gates an unlooked-for, and, for foot passengers, a sufficiently solid bridge, where, ten days before, they had seen only two immense wire-ropes. After this, the other various inferior works soon followed, as the completion of the footway, the erection of the balustrade, &c. At length, on the 8th October, a carriage was driven over the bridge at full gallop, which was followed, on the same day, by the stage, or post coach, from Berne to Freyburg, enthusiastically greeted by a vast number of astonished spectators.

The balustrades, though simply modelled, present, nevertheless, a very handsome appearance. Any vehicle, be it ever so heavily laden, may safely venture over; and although the ear is at first rather startled at the noise of the trampling of horses, yet the most clear-sighted person cannot discover the slightest motion communicated either to the wire ropes or to any other part of the bridge. The traveller passing over does not feel the least vibration, and his astonishment finds no bounds, to think that he has arrived so soon, and in safety, across the deep gulf below.

As has been before observed, the whole structure is suspended by two large ropes of wire, firmly secured at each end, by being let into shafts made for that purpose. At each end the porticos, over which the ropes pass, serve for antagonist supporters, or counterforts. They are built partly of limestone, brought from Neuenberg and Neuenstadt, and partly of sandstone, which is got in the stone quarries in the neighborhood of Freyburg: all the blocks are, by way of greater security, connected with each other by means of iron cramps. The quantity of iron used for this purpose was 570 cwt. The height of the porticos is 65 Berne feet. The opening for the gateway is 45 feet high, 20 feet wide, and 19 feet in depth; the width of each pillar is 14 feet. About

160 feet from the porticos the shafts are situated; their depths are each 58 feet, and their diameters 32 feet. These shafts are hewn out of the rock on both sides, and comprise each three chambers, situated at a certain distance from each other, each containing three immense unwrought blocks of Neuenberg stone, to which the main wire ropes are fastened. The connecting wires or chains, 16 in number, are drawn through these vaults; they rest at the same time on 12 cast iron cylinders, and are held fast by 128 anchors or grapples, of a total weight of 1,024 lbs. These connecting ropes or ties serve the great main wire ropes as auxiliary supports, which bear up on both sides the great beams of the bridge flooring, by means of suspension wires or ties. The length of the main wire ropes is 1,280 feet each. They consist each of 2,000 separate wire threads, which united make a mass of 4,000 threads, or little chains, of a total weight of 960 cwt. Dependent from each of the two main connecting wire ropes, or inverted arch, hang 164 smaller suspension wire ropes, at about 5 feet asunder: these are made fast above through iron loops, and below are connected with hoops of iron, into which the beam ends which support the footway are firmly fastened. The longest of the smaller dependent ropes of wire is 60 feet, and the shortest half a foot; each is composed of 25 single wires, so that the roadway of the bridge is held up by more than 8,000 single wires. The number of beams which form the foundation or platform of the bridge, amounts to 166, held together by 328 hoops of wrought iron. Four lines of beams run longitudinally throughout the whole length of the bridge, upon which rest the two footways. On both sides, to separate the carriage-way from the foot-paths, are strong oaken balustrades, made in the form of St. Andrew's cross, the height of which is 4 feet. The carriage-way is 16 feet, and each footway 3 feet, wide: so that the total width of the bridge is 22 feet. Its total length, including the two counterforts, over which the main wire ropes are passed, is 941 feet; exclusive of the counterforts, its length is 903 feet; the carriage-way alone is 864 feet. Its height above the river, when measured 30th Oct. 1834, was 163 feet.

The quantity of iron used in this work was not less than 80 tons, and of wood 135 tons.

The weight sustained by the two main wire stays is 120 tons; and it is calculated to sustain the amazing and enormous weight of 2,400 tons. J. E. T.

[From the N. Y. Mechanics' Magazine.]

The following letter from Mr. Thomas, of Keeseville, refers to a subject, which, though it has been some time before the public, appears from various causes to have received but a small portion of the attention it merits. To find the true solvent for caoutchouc, or Indian rubber, was a desideratum long sought for by ingenious and scientific men, and great anti-

cipations of the benefits to be derived from it were indulged in, if it could be found; but great as they were, they appear to have borne scarcely the slightest proportion to what proves to be the reality, now that the solvent is found. The benefit of the discovery being secured by letters patent to the discoverer, makes it the business of him and his assigns to extend the application of it to its various uses; but so amazingly extensive is its usefulness, that years, and even ages, may pass away, before it shall be applied to all the purposes it is calculated to answer. When we see its wonderful efficiency, not only in rendering cloth impervious to air and water, but in joining the edges together without sewing—when we see not only cushions to sit on, but beds to lie on, filled with air, so that a stage passenger can sit all day upon a seat, and sleep at night upon a bed, infinitely softer than down—and deflating both in a moment, wrap them up and tuck them in a corner of his trunk or walle t—who, after seeing all this, will attempt to prescribe limits to the uses of such an invention, or who would be without a suit of clothes of it to wear in wet weather, if he could get them? I know not what calculations are made by the proprietors to extend it, but I will venture to say, when the patent expires, if not before, few sails will be seen which are not prepared with Indian rubber; and I think, also, the Mechanics' Magazine may be benefitted by the communications of Mr. Thomas. S. B.

Keeseville, Clinton co., N. Y., May 17, 1835.

S. BLYDENBURGH, Esq.: Sir,—In this age of "Indian rubber," will you permit me to submit to you, whether the application of that article to the sails of vessels of every description would not be highly advantageous to the interests of merchants and the government? Some of the advantages which have occurred to me as likely to be derived from its use, are the preservation of the cloth from mildew, its rendering the texture firmer, more elastic, and of course capable of enduring greater tension when in use. In wet weather the sails would be lighter, and more easily managed. I think if coal tar be the solvent used in making the varnish, the expense attending the process of covering the cloth would not be equal to the benefits arising from its use; but in this I may be in error.

I can think of but one objection to its use: it is possible that spontaneous combustion might ensue when sails should be stowed away in large quantity, and in a close, warm situation.

If you think, sir, the suggestion has any value, please communicate it (if new) to your friend Mr. Minor, of the Mechanics' Magazine, and oblige, very respectfully, your obedient servant,

J. THOMAS.

### On the Use of Plated Glass as Sheathing for Ships' Bottoms.

To the Editor of the Mechanics' Magazine:

SIR,—Much ingenuity has been employed for a long time to invent a sheathing, or bottom, for ships, which would not be subject to corrosion by salt water, and at the same time avoid the accumulation of animalculæ and dirt attendant upon most bottoms which have heretofore been used.

I have thought that the following plan would be free from the usual difficulties, and have taken the liberty of introducing it to your notice. It is possible, however, that it may not be new, and that it may have been tested, but, as far as I have been able to learn, it has not. It consists of plates of different dimensions, size, thickness, and shapes, adapted to the size and form of the ship to be plated. They are to be made from glass, and the same earth and clay from which the wares denominated stone, earthen, and crockery wares, are made, (or from any others capable of being applied to such purposes,) and are to be polished in the same manner, or in any other way, on that surface intended to be exposed to the water. They are to be made with holes of sufficient size to admit screws or nails to pass through them for fastening. These holes are to be so formed, that the nails or screws shall catch and hold the plates below their outer surface. The cavities between the heads of the screws or nails, and the crevices, or space between the plates, are to be filled with water lime, or any other matter, or composition of matter, which will protect the heads of the screws or nails from corrosion, and the bottom of the ship from the water, and give the plating a smooth and even surface.

If I am acquainted with the nature of the articles from which the above plates are proposed to be made, they will not be subject to corrosion, will resist all attacks by animalculæ, keep clean and smooth, and will not be worn by the friction of water. By their being made about one inch, or an inch and a half in thickness, and about a foot square, they will possess much strength. There is an objection which may be insuperable: that is, their danger of being broken by anchor cables. If that be an objection, perhaps it might be obviated by using copper, or some plan might be invented to prevent the cables from coming in contact with the bottom.

I presume that others may have thought of using glass for ships' bottoms, and I have heard it suggested that glass would do away all difficulties; but the suggesters have been at a loss to know how it should be put on to bottoms. If the putting of it on is all the difficulty, it is obviated by making it into such plates as I have described, and I am not aware that this plan has ever been proposed or tried by any person.

Many would look upon a plan for glass or stone ship bottoms as ridiculous; but when they come to consider, that these bottoms are composed of plates of a small size, and of considerable thickness, which renders them much stronger than a whole bottom of glass or stone, and far less liable to be broken, and if broken easily repaired, they might be inclined to regard it more favorably. The expense for plating a ship with these could not vary much from the present expense of coppering; but when a ship is once plated with glass, it is, as it were, plated forever, unless by some sudden blow upon the bottom it might be broken. We do not, however, expect a ship to strike the ground, or a rock, without doing great damage, whatever may be her bottom.

I have thus troubled you with an imperfect and disconnected statement of what I conceived might be an improvement in ship's bottoms; and I have endeavored to give you a few of my ideas in relation to it. They may be correct, and they may be grossly incorrect. If it should be deserving of any notice by one so capable as yourself to judge of its merit or demerit, I shall be much gratified and honored; if it is not, I shall not be disappointed. If my plan, or any part of it, shall be worthy of notice, I no doubt shall find that notice in your valuable Magazine; if it is not, I shall expect it to be treated accordingly.

I shall, in any event, have the consciousness of having made an endeavor to benefit mankind.

Yours, very respectfully,

ROSRIM.

Utica, March 31, 1835.

The letter we publish from CHICAGO, exhibits a curious state of things in that—newly discovered region we may almost call it—deserving of attention.

The land sales, wherever settlers, as they call themselves, but squatters in fact, have taken previous possession, become absolutely nominal—since these settlers combine to prevent, by force, other parties from bidding for the land.

Such was the ingress, it will be perceived, of strangers, to attend the land sales, that neither food nor lodging was to be obtained for love or money. It would be worth while for emigrants to carry with them some provisions, and a tent or two—the latter, in these piping times of peace, might be had dog cheap.

Extract from a letter dated, Chicago, June 18th.

"Mechanics wages are very high here, being \$1 50 to \$1 75, per day. Provisions of all kinds are also high, owing to the number of emigrants passing through, and to the extraordinary number of persons attending the land sale. Flour sold here yesterday at \$20; and 25, per barrel is asked to-day. Butter, 37 1-2 per lb.; Eggs 25 per doz; Potatoes, \$1 50 to \$2 per bushel; Oats \$1 a 1 25; Corn, \$1; Wheat, 80 cents, but no mills to grind it. We shall probably, however, have supplies from Lake Erie soon—or there will be a famine.

Hundreds have left here for want of accommodations. Several who came in the steamboat Thomas Jefferson to attend the land sale, returned in her, because they could get neither victuals to eat, nor a floor to sleep on. Hundreds who came before them, have no other bed than the floor, and many sleep in covered waggons in the open air.

The sales of public Lands have gone quietly on until to-day—the settlers bidding for that on which they had settled at \$1 25 per acre, when one or two speculators undertook to out bid them; this caused an immediate skirmish in which the speculators were rather roughly handled—not however very much injured. It is generally understood that the settlers are to be allowed to have the land on which they have located at government prices. They have in one township organized, and are determined, at all hazards, not to be interfered with.

June 19th.—I have but a moment to add that there has been no disturbance to-day, between the settlers and other purchasers, as was apprehended—except in one or two instances; and those were immediately quelled. There has been paid into the Land Office, up to 6 P. M. this evening, over \$200,000.

Flour sold this day at \$25, and \$28 per barrel was offered for more, and refused; I am happy however to say, that a vessel has arrived from Lake Erie, which is said to have some on board.

The following vivid description of the unparalleled emigration to Illinois, is taken from the 2d number of the *Chicago American*, of 13th inst. published in the village of Chicago, by Thomas O. Davis, recently of this city. Indeed the "*Chicago American*" is itself a striking evidence of the rapid growth, and increasing importance of that country as it is but a few months since its enterprising proprietor was, an apprentice, and more recently a journeyman in this city; in both of which stations he did himself credit; as we are confident he will in his present capacity, as proprietor, publisher, and Editor of a journal in this miniature city of the "far West."

The paper is handsomely printed on good paper, with new type, and evinces both talent and industry. A specimen of number one and two may be seen at the store of Messrs. T. & C. Wood, Stationers, next door to this office, who are Agents to receive and forward subscriptions and advertisements.

"THE CRY IS STILL THEY COME."—The tide of emigration which is flowing in, this season, far exceeds that of any former period. The flood-gates of enterprise seem to be let loose upon us, and multitudes are crowding on to this young land, as if the pestilence were behind, eager to find a better home, where they can build their fortunes and their hopes, and enjoy the plenty which our fat fields yield to the hand of industry. In addition to the actual emigrants that are now pressing into this region, the approaching land-sale is bringing into our town a crowd of strangers, and capitalists ready to avail themselves of the benefits of the rapid rise in value of the real estate of the country. The actual population of Chicago, we cannot estimate with any degree of accuracy, but it is now supposed to be between 2500 and 3000. Strangers, to the amount of some hundreds more, fill our public houses and streets, our wharves are covered with men, women and children, just landed from the vessels, and even some store houses have been thrown open to receive the unsheltered emigrants, who had else remained under the open sky upon the wharves. Some build tents upon the spot where they are landed from the boat, in the middle of our streets, then raise them and move on. The cry is "Westward Ho!" and they press on still deeper in the interminable prairies; history seems to be filling up the prophecy of the Bishop of Cloyne; the "Star of Empire is taking its way westward, and in its last ascendancy shall shine upon the noblest kingdom. The emigration to Illinois this season, is chiefly crowding into the northern part of the State, Cook county, which two years ago exhibited a few scattered dwellings, along the groves or by the streams, is now rife with thriving settlements; and some smart villages have arisen too, as by enchantment. The solitary inhabitant of a grove, has seen a community suddenly gather around him. Schools are actually in successful operation, where a year since was but a solitary emigrant. But we have land enough yet which offers itself to the moulding hand of the emigrant—yet untouched, and invites the hand of cultivation.

La Salle, and other neighboring counties at the north, are receiving a similar influx of emigration, though perhaps less abundantly than Cook. We are informed that they are rapidly settling in the Rock River country—a beautiful, fertile, and healthy region—and that hundreds have within the last few months, occupied the region before inhabited by a dozen or more. We rejoice in the fair prospect and rapid growth of our State. Our fat fields will soon be reduced to culture; and we trust, too, that our rivers will be deepened and brought into communication with each other, and with the great commercial marts of the nation, by artificial channels or roads; and thus our produce be made valuable by the convenience and facilities of good markets. Let emigrants come,—we have an immense domain for them. More than twenty millions of acres of land in Illinois are spread out before them. Richer fields were never bared to the sun.

We welcome them to our young home of enterprise and prosperity. We welcome them to partake with us the pleasures as well as the hardships of a new country, and to enjoy with us the full hopes in prospect.

## NEW-YORK AMERICAN.

JUNE 27—JULY 3, 1835

## LITERARY NOTICES.

THE AMERICAN QUARTERLY REVIEW, No. xxxiv., for June. Philadelphia. LYDIA R. BALEY.—We like this number much, though we are somewhat tardy in noticing it. The first paper, on *National Music*, is entertaining, though as a nation we have not, and from our heterogeneous origin and composition, cannot have any such. Moreover, music, like architecture, seems to us as yet, we confess, a stranger to our soil—at least among its white denizens. In both these particulars, we take after our English ancestors.

The paper on *Shirreff's Tour*, in this country, with the extracts given from the book, lead us to hope it may be republished here. Mr. Shirreff is "a plain East Lothian farmer," who visited this country with a view to determine, by his own observation, whether it would be expedient for a younger brother of his, to emigrate hither. He is evidently a scientific, as well as practical agriculturalist—and withal, possessing strong sound sense and a keen spirit of observation. We annex at hazard some quotations.

*Visit to a celebrated seat upon the North River.*—"We left New York early in the morning, by the Albany steam-boat, for Hyde Park, after viewing which we returned to the landing-place on the river Hudson, and, at half-past twelve at night, stepped on board of a steam-boat which landed us at Albany a little after seven next morning. I got on deck at four, when passing the town of Hudson; the wind was blowing high from the north, and piercingly cold.

"Hyde Park, the seat of Doctor Hosack, is the most celebrated in America, and which Mr. Stuart describes as being 'embellished as a fine residence and fine grounds in England.' The house is situated some hundreds of feet above the level of, and at a considerable distance from, the Hudson, the intervening grounds being finely undulating.—In front of the house there is a road, leading from the landing-place on the river, along a small stream, over which there is an elegant wooden bridge, and several artificial cascades have been formed in its channel. The house is composed of wood, as well as the offices and lodges, painted white, and are very neat of their kind. The conservatory had been dismantled a few days before our arrival, by placing the plants in the open air: the collection seemed extensive and well kept.—The flower garden is small, the walks limited, and both destitute of beauty. I am aware that most of the evergreens which impart loveliness to the residences in Britain cannot withstand the rigors of an American winter, but this circumstance is no excuse for the nakedness of Hyde Park walks, the aid of many native plants having been disregarded. The matchless beauties of the situation have not only been frequently neglected, but destroyed by stiff, formal, naked walks, and the erection of temples resembling meat-safes, without a climbing plant, which the country produces in endless variety, to hide their deformity, and harmonize them with the surrounding scene. In short, while I greatly admire the situation of Hyde Park, I do not recollect having seen a celebrated place where nature had done so much, and man so little, to render beautiful. The embellishments at Hyde Park, contrasted with those met with every day in Britain, place American landscape-gardening immeasurably behind, if it can be said to exist.

"The progress of a people in refinement and taste, manifested in a combination of nature and art, is commonly the work of time, and the decoration of grounds an unproductive investment of capital. Thus the residences of England having descended for ages in the same line, without the power of the possessors' changing their destination, may be said to represent the accumulated savings, labors, and tastes of many generations. In America the country has not been long possessed by the present owners, and property does not necessarily descend in the same line; and if to these causes be added the high price of labor, and the scarcity of capital, the state of the residences will be sufficiently accounted for. Dr. Hos-

ack has great merit in what he has accomplished, but it is mockery to compare his grounds, in point of embellishment, with the fine places in Britain, which have originated from circumstances which America is not likely soon to experience.

"Throughout the whole of my transatlantic tour, the inhabitants of the country manifested perfect indifference to the beauties nature. It was rarely I could learn the name of a plant, with the exception of trees. Nurserymen, seedsmen, and farmers, were, generally, unacquainted with varieties, and, with the exception of two or three individuals, no one seemed interested in the matter. Rhododendrons grow as plentifully in many parts of the Eastern States as furze in Britain, yet I saw vast numbers of this plant shipping at Liverpool for Philadelphia, although millions of the same variety could have been obtained for the trouble of lifting, at no great distance from the city. Gardens and nurseries were overrun with weeds, and did not display beauty either in decoration or arrangement."

In a short time we find Mr. Shirreff at Lowell, Massachusetts, and the reflections suggested by the state of things in that manufacturing town, deserve to be extracted:

"The females engaged in manufacturing amount to nearly 5000, and as we arrived at Lowell on the afternoon of Saturday, we had an opportunity of seeing those connected with some of the largest cotton factories retiring from labor. All were clean, neat, and fashionably attired, with reticules hanging on their arms, and calashes on their heads. They commonly walked arm in arm without displaying levity. Their general appearance and deportment was such that few British gentlemen, in the middle ranks of life, need have been ashamed of leading any of them to a tea-party. Next day, being Sunday, we saw the young females belonging to the factories going to church in their best attire, when the favorable impressions of the preceding evening were not effaced. They lodge, generally, in boarding houses, and earn about 8s. 6d. sterling per week, independent of board; serving girls earn about 4s. 3d.

"The recent introduction of large manufacturing establishments, thin population, and ample reward of labor, account for the apparent comfort and propriety of the Lowell young women. The situation of the manufacturing class in Britain is very different: nurtured amidst poverty and vice, they toil in crowded and unwholesome factories from infancy, often disregarded by parents and employers, and attaining maturity ruined in constitution and morals, with few of the sympathies of humanity."

"This village may be taken as an instance of the giant strides by which the United States are advancing to greatness, and the immeasurable water power nature has lavished on them. The canal supplies more water than the present machinery requires; and, after inspecting the surplus in the canal and the rivers, I am of opinion, there is water enough to propel nearly one hundred times the machinery at present employed, and which might employ a population of above a hundred thousand souls.

"Britain is said to owe much of her greatness to the supply of coal with which she has been blessed; but however extensive and available it may be, the water power of the United States will excel it in cheapness and magnitude. The price of labor is, and will likely continue, much cheaper in Britain than in the United States, which seems the only circumstance that can ultimately give a superiority to the manufactories of the former."

On the score of domestic manners, the general deportment of the people, and the habitual civility of all classes among them, the testimony of Mr. Shirreff is to the following effect:—

"Although I did not often witness the domestic manners of the Americans, my opportunities of meeting the inhabitants of the United States in public were frequent, and the impressions imbibed during my intercourse with them were different from what the accounts of others led me to expect. Many travellers who have written on the subject were perhaps ill qualified to form a just estimate of American manners and character, from the sphere of society in which they themselves had previously moved. No scion nor associate of British aristocracy, who has not been brought into familiar intercourse with the middling and lower orders of his own countrymen, is likely to do justice to the Ame-

ricans, and the tenor of many of the remarks which have been given to the world on the subject is evidence of the writers never having before associated with the class of people to whom they allude. The inhabitants of Britain, in private and public life, being divided into grades, some individuals are altogether unacquainted with the manners and customs of the classes below them. And as Englishmen of high pretensions and refinement, on reaching America, mingle on terms of equality at public tables and in conveyances with the commonest operatives, they feel disgusted with the manners of the people around them, without considering they belong to a different class from their own associates at home. In Britain, a person of rank is generally regarded with respect by the classes below him. In the United States, rank seldom meets with or expects deference from the people, and the humblest citizen familiarly enters into conversation with every individual who addresses him. This self-possession is often taken for forwardness, and their unembarrassed conversation for insolence. In Britain the different classes of population generally remain distinct, and many of their excesses are hid from common gaze. In most parts of the United States, the bar-rooms of hotels form the only scenes of tippling, and, being at all times open to the public, a traveller is apt to consider the people more dissipated than they really are. Were a gentlemanly foreigner to meet the lowest class of the people of England at table, and associate with them in their haunts of vice, his adventures would form a high-colored picture of English manners and society."

"On first reaching the United States, the plainness of the people's manners appeared remarkable. In all classes there was a total absence of grimace and corporeal token of respect, with corresponding sounds of address, an expression of obligation or thankfulness seldom being heard. In courteousness the inhabitants appear as far behind the British as the French exceed them. But, on the other hand, vulgarity, rudeness, or insolence, is almost never met with in the humblest walks of life. Mechanics and storekeepers ride in the same vehicle, and sit down at the same table, with the most polished members of society; all seem desirous of behaving well to each other, a rude or indelicate remark never being made, nor a disgusting practice indulged in. On one occasion only I met with revolting behaviour, at the table of the Washington hotel, during my first residence at New York. On my second visit, I found the individual still an inmate of the house, in which he had lodged for 14 years. He was an eccentric character, and originally from England.

"A general propriety of deportment and softness of manners pervades the lower classes, and that coarseness, which is sometimes met with in Britain, does not appear to exist in the United States; but certain circles of society in Britain seem to have a higher polish than what is to be met with in America, and perhaps the general standard of manners of both countries is not widely different. The lower orders of the United States are, however, beyond all question, greatly superior in refinement and intelligence to the lower orders of Britain."

"The civility of all classes in the United States is so universal, that during my intercourse with the inhabitants, I scarcely experienced an indication of insolence, and never observed that democratic sauciness which I was taught to expect among the lower orders. Every individual feels that he is independent, and never alludes to the subject.—The case is, however, different in Canada, where some British emigrants seldom let an opportunity escape of telling a well-dressed person, that 'this is a free country, and that he does not care a \* \* \* for any man.' The emancipated bondsman alone boasts of being free from fetters. A foreigner, however, who arrogates to himself superiority in the United States, will be despised by the meanest of the people, and his money will neither purchase their attention nor services. The United States which I visited, seem to me an excellent place for teaching an overweening person a due estimate of himself and his fellow mortals. Twelve months' intercourse with the people would greatly improve the fagged and fagging youthful aristocracy of Britain. Their haughtiness of demeanor, and acerbity and impatience of temper would be changed, and they would return home with a just sense of the place they occupy in the world, and qualified to discharge the important duties they owe society.—

Every Briton who has mingled with the people for any length of time, and practised self-examination, will testify to the truth of my remarks."

**PORTRAITS OF THE PRINCIPAL REFORMERS** of the 16th century, &c., 1 vol. N. Y.—VAN NOSTRAND AND DWIGHT.—In this neatly printed and well-executed little volume, we have a brief history of the Reformation, and following it, portraits, with short biographical notices, of the leading Reformers from John Wiclif to John Knox. The portraits are medallions, from Ormsby's machine.

**THE STUDENT**, a series of papers, by the author of *Eugene Aram*. 2 vols. New York. HARPER & BROTHERS.

We have before alluded to this collection, by Bulwer, of various essays—some of which have appeared before. It is one that makes up two very agreeable, and withal, instructive volumes, written in a style which "utters in prose, what are the ordinary didactics of poetry."

In the second volume are "The Conversations of an ambitious Student in ill health," which attracted so much attention, as they appeared originally, in the *New Monthly Magazine*.

We learn, for the first time, from the remarks prefixed to this collection, that *Bulwer* is engaged, and has for some years, at intervals, been, "upon a historical work." No indication is given as to its subject, or the period to which it refers.

**A DETAIL OF SOME PARTICULAR SERVICES PERFORMED IN AMERICA** during the years 1776, 7, 8, and 9, &c. &c. N. Y.—This is a very curious publication. The narrative purports to be compiled from journals and original papers, supposed to be chiefly taken from the journal kept on board of the ship *Rainbow*, commanded by Sir George Collier, while on the American station, during the period above referred to. It is printed for our fellow citizen **ITHIEL TOWN**—distinguished as an Architect—from a manuscript purchased by him in London, in 1830, at a public sale of autographs and manuscripts, from the collection of a private gentleman. It bears internal evidence of being genuine, and is valuable as a memoir to serve for future historians.

**HORSE SHOE ROBINSON**. A tale of the **TORY ASCENDENCY**—by the author of *SWALLOW BARN*—2 vols.: *Philad.*, CAREY, LEA & BLANCHARD.—In *Swallow Barn* the author gave in a somewhat disconnected story, a series of pictures of Virginia life—which presented in admirable relief, its peculiarities. It was in this, rather than in the interest of the story as a whole, that his success laid.

The work now before us, is of a higher cost and higher execution. It is indeed fraught with stirring incidents, and the characters are drawn with a master's hand. The blacksmith, *Robinson*, from whom the work takes its name—*Mildred Lindsay*, and her gallant brother, are finely conceived, and never falter in the course of the narrative.

"The political and documentary history of the revolutionary war," it is well said by the author, "has been written. Its romantic or picturesque features have been left for the industrious tribe of chroniclers." It is as one of them, that the author of *Swallow Barn* now addresses the public, and he has assuredly extracted from the many unsung, and unhonored, but not less daring and romantic incidents of the fierce civil war in the South, before GREENE had turned the tide of victory, the materials for two charming volumes.

Historical accuracy is preserved—and indeed the chief personages, including the blacksmith Hero, are also historical, though some license has of course been taken in the construction of the story.

Mr. KENNEDY, for it is no secret that he is the

author, has abundantly shown in this work, how fruitful our revolutionary struggle is, in incidents which the pen of genius may avail of, for the historical romance—and he has shown too, his ability and fitness to wield that pen.

*An adventure wherein it is apparent that the actions of real life are full as marvellous as the inventions of romance:*

On the morning that succeeded the night on which Horse Shoe Robinson arrived at Musgrave's, the stout and honest sergeant might have been seen, about eight o'clock, leaving the main road from Ninety-Six at the point where that leading to David Ramsay's separated from it, and cautiously urging his way into the deep forest, by the more private path into which he had entered.—The knowledge that Innes was encamped along the Ennoree, within a short distance of the mill, had compelled him to make an extensive circuit to reach Ramsay's dwelling, whither he was now bent; and he had experienced considerable delay in his morning journey, by finding himself frequently in the neighborhood of small foraging parties of Tories, whose motion he was obliged to watch for fear of an encounter. He had once already been compelled to use his horse's heels in, what he called, 'fair fight!'—and once to ensconce himself, a full half hour, under cover of the thicket afforded him by a swamp. He now, therefore, according to his own phrase, 'dived into the little road that scrambled down through the woods towards Ramsay's, with all his eyes about him, looking out as sharply as a fox on a foggy morning:—and with this circumspection, he was not long in arriving within view of Ramsay's house. Like a practised soldier, whom frequent frays had taught wisdom, he resolved to reconnoitre before he advanced upon a post that might be in possession of an enemy. He therefore dismounted, fastened his horse in a fence corner, where a field of corn concealed him from notice, and then stealthily crept forward until he came immediately behind one of the out-houses.

The barking of a house-dog brought out a negro boy, to whom Robinson instantly addressed the query,

"Where is your master, you powder monkey?—stop that dog!"

"Yaick—ya hound!"—cried the boy, aiming a blow at the dog's head with his hand.—"What is you making a fuss about!—Massa done gone, sa."

"Where?"—inquired the sergeant.

"Got on his critter, arter he done his breckfus, and started away, like all de world."

"Your mistress?"

"She home, sa, shelling beans."

"Any soddgers or strangers there?"

"All gone, sa,"—replied the negro.

Robinson, having thus satisfied himself as to the safety of his visit, directed the boy to take his horse and lead him up to the door. He then entered the dwelling.

"Mistress Ramsay," said he, walking up to the dame, who was occupied at a table, with a large trencher before her, in which she was plying that household thrift which the negro described,—"luck to you, ma'am, and all your house! I hope you haven't none of these clinking and clattering bulies about you, that are as thick over this country as the frogs in the kneading troughs—that they tell of."

"Good lack—Mr. Horse Shoe Robinson!" exclaimed the matron, offering the sergeant her hand.—"What has brought you here?—What news?—Who are with you?—For patience sake, tell me!"

"I am alone,"—said Robinson—"and a little wet-tish, mistress,"—he added, as he took off his hat and shook the water from it:—"it has just sot up a rain, and looks as if it was going to give us enough on't.—You don't mind doing a little dinner work of a Sunday, I see—shelling of beans, I spose, is tantamount to dragging a sheep out of a pond, as the preachers allow on the sabbath—ha, ha!—Where's Davy?"

"He's gone over to the meeting-house on Ennoree, hoping to hear something of the army at Camden:—perhaps you can tell us the news from that quarter?"

"Faith, that's a mistake, mistress Ramsay.—Though I don't doubt that they are hard upon the scratches, by this time. But, at this present speaking, I command the flying artillery. We have but one man in the corps, and that's myself; and all the guns we have got is this piece of ordi-

nance, that hangs in this old belt by my side, (pointing to his sword)—and that I captured from the enemy at Bradstock's. I was hoping I might find John Ramsay at home.—I have need of him as a recruit."

"Ah, Mr. Robinson,—John has a heavy life of it—over there with Sumpter. The boy is often without his natural rest, or a meal's victuals; and the general thinks so much of him, that he can't spare him to come home. I hav'nt the heart to complain, as long as John's service is of any account, but it does seem, Mr. Robinson, like needless tempting of the mercies of Providence. We thought that he might have been here to-day; yet I am glad he didn't come—for he would have been certain to get into trouble. Who should come in this morning, just after my husband had cleverly got away on his horse, but a young cock-a-whoop ensign, that belongs to Ninety-Six—and four great Scotchmen with him, all in red coats; they had been out thieving, I warrant, and were now going home again. And who but they! Here they were, swaggering all about my house—and calling for this—and calling for that—as if they owned the free simple of every thing on the plantation. And it made my blood rise, Mr. Horse Shoe, to see them turn out in the yard and catch up my chickens and ducks, and kill as many as they could string about them—and I not daring to say a word; though, I did give them a piece of my mind too."

"Who is at home with you?"—inquired the sergeant eagerly.

"Nobody but my youngest boy, Andrew,"—answered the dame. "And then, the filthy, toping rioters,—she continued, exalting her voice.

"What arms have you in your house?"—asked Robinson, without heeding the dame's rising anger.

"We have a rifle, and a horseman's pistol that belongs to John.—They must call for drink too, and turn my house, of a Sunday morning, into a tavern."

"They took the route towards Ninety-Six, you said, mistress Ramsay?"

"Yes,—they went straight forward upon the road. But, look you, Mr. Horse Shoe,—you're not thinking of going after them?"

"Isn't there an old field, about a mile from here, on that road?"—inquired the sergeant, still intent upon his own thoughts—

"Certain,"—replied the hostess.—"You must remember the cobbler that died of drink on the road side?"

"There is a shabby, racketty cabin in the middle of the field—am I right, good woman?"

"Yes."

"And nobody lives in it.—It has no door to it?"

"There ha'n't been a family there, these seven years."

"I know the place, very well,"—said the sergeant thoughtfully,—"there is woods just on the side of it."

"That's true,"—replied the dame:—"but what is it you are thinking about, Mr. Robinson?"

"How long before this rain began, was it that they quitted the house?"

"Not above fifteen minutes."

"Mistress Ramsay—bring me the rifle and pistol both—and the powder horn and bullets."

"As you say, Mr. Horse Shoe,"—answered the dame as she turned round to leave the room,—"but I am sure I can't suspicion what you mean to do."

In a few moments the woman returned with the weapons, and gave them to the sergeant.

"Where is Andy?"—asked Horse Shoe.

The hostess went to the door and called her son, —and, almost immediately afterwards, a sturdy boy, of about twelve or fourteen years of age, entered the apartment, his clothes dripping with rain. He modestly and shyly seated himself on a chair near the door with his soaked hat flapping down over a face full of freckles, and not less rife with the expression of an open, dauntless hardihood of character.

"How would you like a scrummage, Andy, with them Scotchmen that stole your mother's chickens this morning?"—asked Horse Shoe.

"I'm agreed,"—replied the boy,——"if you will tell me what to do."

"You are not going to take the boy out on any of your desperate projects, Mr. Horse Shoe?"—said the mother, with the tears starting instantly into her eyes.—"You wouldn't take such a child as that into danger?"

"Bless your soul, mistress Ramsay, there arn't no danger about it! Don't tak on so. It's a thing

that is either done at a blow, or not done,—and there's an end of it. I want the lad only to bring home the prisoners for me, after I have took them."

"Ah, Mr. Robinson, I have one son already in these wars—God protect him!—and you men don't know how a mother's heart yearns for her children in these times. I cannot give another,"—she added, as she threw her arms over the shoulders of the youth and drew him to her bosom.

"Oh, it aint nothing,"—said Andrew, in a sprightly tone.—"It's only snapping a pistol, mother,—pooh!—If I'm not afraid, you oughtn't to be."

"I give you my honor, mistress Ramsay,"—said Robinson,—"that I will bring or send your son, safe back in one hour; and that he shan't be put in any sort of danger whatsoever;—come,—that's a good woman!"

"You are not deceiving me, Mr. Robinson?"—asked the matron, wiping a way tear.—"You wouldn't mock the sufferings of a weak woman in such a thing as this?"

"On the honesty of a sodger, ma'am,"—replied Horse Shoe,—"the lad shall be in no danger,—as I said before—whatsoever."

"Then I will say no more,"—answered the mother.—"But Andy, my child, be sure to let Mr. Robinson keep before you."

Horse Shoe now loaded the fire-arms, and having slung the pouch across his body, he put the pistol into the hands of the boy; then shouldering his rifle, he and his young ally left the room. Even on this occasion, serious as it might be deemed; the sergeant did not depart without giving some manifestation of that light-heartedness, which no difficulties ever seemed to have power to conquer. He thrust his head back into the room, after he had crossed the threshold, and said with an encouraging laugh, "Andy and me will teach them, Mistress Ramsay, Pat's point of war, we will surround the ragamuffins."

"Now Andy, my lad,"—said Horse Shoe, after he had mounted Captain Peter,—"you must get up behind me. Turn the lock of your pistol down," he continued, as the boy sprang upon the horse's rump, "and cover it with the flap of your jacket, to keep the rain off. It won't do to hang fire at such a time as this."

The lad did as he was directed, and Horse Shoe having secured his rifle in the same way, put his horse up to a gallop and took the road in the direction that had been pursued by the soldiers.

As soon as our adventurers had gained a wood, at the distance of about half a mile, the sergeant relaxed his speed and advanced at a pace but little above a walk.

"Andy," he said,—"We have got rather a ticklish sort of a job, before us—so I must give you your lesson, which you will understand better by knowing something of my plan. As soon as your mother told me that these thieving villains had left her house about fifteen minutes before the rain came on, and that they had gone along upon this road, I remembered the old field up here, and the little log hut in the middle of it; and it was natural to suppose that they had just got about near that hut, when this rain came up,—and then, it was the most supposable case in the world, that they would naturally go into it, as the driest place they could find. So now, you see, it's my calculation that the whole batch is there at this very point of time. We will go slowly along, until we get to the other end of this wood, in sight of the old field—and then, if there is no one on the look-out, we will open our first trench;—you know what that means, Andy?"

"It means, I s'pose, that we'll go right smack at them,"—replied Andrew.

"Pretty exactly,"—said the sergeant.—"But listen to me. Just at the edge of the woods you will have to get down, and put yourself behind a tree. I'll ride forward, as if I had a whole troop at my heels,—and if I catch them, as I expect, they will have a little fire kindled and, as likely as not, they'll be cooking some of your mother's fowls."

"Yes—I understand,"—said the boy eagerly.

"No you don't,"—replied Horse Shoe;—"but you will when you hear what I am going to say. If I get at them unawares, they'll be mighty apt to think they are surrounded, and will bellow like fine fellows, for quarters. And, thereupon, Andy, I'll cry out 'stand fast,'—as if I was speaking to my own men,—and when you hear that, you must come up full tilt, because it will be a signal to you that the enemy has surrendered. Then it will be your business to run into the house and bring out the muskets, as quick as a rat runs through a

kitchen: and when you have done that,—why all's done. But if you should hear any popping of fire arms—that is, more than one shot, which I may chance to let off—do you take that for a bad sign, and get away as fast as you can heel it. You comprehend?"

"Oh yes,"—replied the lad,—and I'll do what you want,—and more too, may be, Mr. Robinson."

"Captain Robinson,—remember, Andy; you must call me captain, in the hearing of these Scotchmen."

"I'll not forget that neither,"—answered Andrew.

By the time that these instructions were fully impressed upon the boy, our adventurous forlorn hope, as it may fitly be called, had arrived at the place which Horse Shoe had designated for the commencement of active operations. They had a clear view of the old field; and it afforded them a strong assurance that the enemy was exactly where they wished him to be, when they discovered a smoke arising from the chimney of the hovel. Andrew was instantly posted behind a tree, and Robinson only tarried a moment to make the boy repeat the signals agreed on, in order to ascertain that he had them correctly in his memory. Being satisfied from this experiment that the intelligence of young Ramsay might be depended upon, he galloped across the intervening space, and, in a few seconds, abruptly reigned up his steed in the very doorway of the hut. The party within was gathered around a fire at the further end; and, in the corner opposite the door, were four muskets thrown together against the wall. To spring from his saddle, thrust himself one pace inside of the door, and to level his rifle at the group beside the fire, was a movement which the sergeant executed in an instant,—shouting at the same time—

"Surrender to captain Robinson, of the Free Will Volunteers, and the Continental Congress—or you are all dead men!"—Halt," he vociferated in a voice of thunder, as if speaking to a corps under his command:—"file off, cornet, right and left, to both sides of the house. The first man that budges a foot from that there fire place, shall have fifty balls through his body."

"To arms!" cried the young officer who commanded the squad inside the house. "Leap to your arms, men! Why do you stand, you villains?" he added, as he perceived his men hesitate to move towards the corner, where the muskets were piled.

"I don't want your blood, young man," said Robinson, coolly, as he still levelled his rifle at the officer, "nor that of your people:—but by my father's son, I'll not leave one of you to be put upon muster roll, if you move an inch!"

Both parties now stood, for a brief space, eyeing each other, in a fearful suspense, during which there was an expression of mixed doubt and anger visible on the countenance of the soldiers, as they surveyed the broad proportions, and met the stern glance of the sergeant—while the delay, also, began to raise an apprehension in the mind of Robinson, that his stratagem had been discovered.

"Upon him—at the risk of your lives!"—cried the officer:—and, on the instant, one of the soldiers moved rapidly towards the further wall; upon which the sergeant, apprehending the seizure of the weapons, sprang forward in such a manner as would have brought his body immediately before them, but a decayed plank in the floor caught his foot and he fell to his knee. It was a lucky accident,—for the discharge of a pistol by the officer, planted a bullet in the log of the cabin, which would have lodged, full in the square breast of the gallant Horse Shoe, if he had retained his perpendicular position. His footing, however, was recovered almost as soon as it was lost, and the next moment found him bravely posted in front of the fire-arms, with his own weapon thrust almost into the face of the foremost assailant. The hurry, confusion and peril of the crisis did not take away his self possession,—but he now found himself unexpectedly thrown into a situation of infinite difficulty, where all the chances of the fight were against him.

"Back men, and guard the door,"—he cried out as if again addressing his troop.—"Sir, I will not be answerable for consequences if my troopers once come into this house. If you do hope for quarters give up on the spot."

"His men have retreated,"—cried one of the soldiers. "Upon him boys!"—and instantly two or three pressed upon the sergeant, who, seizing his rifle in both hands, bore them back by main force until he had thrown them prostrate on the floor.—

He then leaped towards the door with the intention of making good his retreat.

"Shall I let loose upon them, captain?" said Andrew Ramsay, now appearing most unexpectedly to Robinson, at the door of the hut. "Come on my brave boys, he shouted as he turned his face towards the field.

"Keep them outside of the door,—stand fast,"—cried the doughty sergeant again, with admirable promptitude, in the new and sudden posture of his affairs caused by this opportune appearance of the boy. "Sir you see that you are beaten—let me warn you once more to save the lives of your men, its onpossible for me to keep my people off a minute longer. What signifies fighting five to one?"

During this appeal the sergeant was ably seconded by the lad outside, who was calling out first on one name and then on another, as if in the presence of a troop. The device succeeded, and the officer within, believing the forbearance of Robinson to be real, at length said—

"Lower your rifle, sir. In the presence of a superior force, taken by surprise and without arms, it is my duty to save bloodshed. With the promise of fair usage, and the rights of prisoners of war, I surrender this little foraging party under my command."

"I'll make the terms agreeable," replied the sergeant. "Never doubt me, sir. Right hand file, advance and receive the arms of the prisoners!"

"I'm here captain,"—said Andrew in a concited tone as if it were a mere occasion of merriment;—and the lad quickly entered the house and secured the weapons, retreating with them some paces from the door.

"Now, sir,"—said Horse Shoe to the ensign,—"your sword, and what ever else you mought have about you of the ammunitions of war!"

The officer delivered up his sword and a pair of pocket pistols.

"Private property, I presume, will be protected," he said.

"Ondoubtedly," replied Robinson: "your name? if I mought take freedom?"

"Ensign St. Jeremyn, of his Majesty's seventy-first regiment of Light Infantry."

"Ensign, your sarvant,"—added Horse Shoe, aiming at an unusual exhibition of politeness.—"You have defended your post like an old sodger, although you ha'n't much beard on your chin;—I'll certify for you. But, seeing you have given up, you shall be treated like a man who has done his duty. You will walk out now and form yourselves in a line before the door. I'll engage my men shall do you no harm;—they are of a marvellous breed."

When the little squad of prisoners submitted to this command, and came to the door, they were stricken with the most profound astonishment to find, in place of a large detachment of cavalry which they expected to see, nothing but one horse, one man and one boy. Their first emotions were expressed in curses, which were even succeeded by laughter from one or two of the number. There seemed to be a disposition on the part of some, to resist the authority that now controlled them; and sundry glances were exchanged, which indicated a purpose to turn upon their captors. The sergeant no sooner perceived this, than he halted, raised his rifle to his breast, and, at the same instant gave Andrew Ramsay an order to retire a few paces, and to fire one of the captured pieces at the first man who opened his lips:

"By my hand,"—said he,—"if I find any trouble in taking you, all five, safe away from this here house, I will thin your numbers with your own muskets! And that's as good as if I had sworn to it."

"You have my word sir,"—said the Ensign.—"Lead on—we'll follow."

"By your leave—my pretty gentleman—you will lead, and I'll follow,"—replied Horse Shoe.—"It may be a new piece of drill to you—but the custom is to give the prisoners the post of honor, and to walk them in front."

"As you please, sir,"—answered the Ensign.—"Where do you take us?"

"You will march back the road you came,"—said the sergeant.

Finding the conqueror determined to execute summary martial law upon the first who should mutiny, the prisoners now marched in double files from the hut, back towards Ramsay's—Horse Shoe, with Captain Peter's bridle dangling over his arm, and his gallant young auxiliary, Andrew, laden

with double the burden of Robinson Crusoe, (having all the fire arms packed upon his shoulders,) bringing up the rear. In this order, victors and vanquished returned to David Ramsay's.

"Well, I have brought you your ducks and chickens back," mistress, said the sergeant, as he halted his prisoners at the door; "and what's more, I have brought home a young sodger that's worth his weight in gold."

"Heaven bless my child!—my boy, my brave boy!" cried the mother, seizing the lad Andrew in her arms, and unheeding any thing else in the present perturbation of her feelings. "I feared ill would become of it: but Heaven has preserved him. Did he behave handsomely, Mr. Robinson? But I am sure he did."

"A little more venturesome, ma'am, than I wanted him to be," replied Horse Shoe. "But he did excellent service. These are his prisoners, mistress Ramsay—I should never have got them, if it had not been for Andy. In these drumming and fifing times, the babies suck in quarrel with their mother's milk. Show me another boy in America that's made more prisoners than there was men to fight with them—that's all! He's a first rate chap, mistress Ramsay—take my word for it."

#### EUROPEAN INTELLIGENCE.

**LATER FROM ENGLAND.**—We received on Saturday evening files of London and Liverpool papers, to the 26th and 27th inclusive, by the packet **INDEPENDENCE, CAPT. NYE.**

The Francis Depau, Capt. Robinson, from Havre, whence she sailed on the 19th May, also arrived on Saturday, bringing our files of papers also, which, however, are of little interest, as we have several days later dates by way of London.

We do not find in any of the papers one word in relation to the indemnity bill. The entire attention of the French people is directed to the trial of Lyons rioters, which proceeds very slowly.

The accounts from Spain are any thing but cheering to those who desired the overthrow of Carlos.

Of England it may be said, *stocks have fallen.*

"**BRING FLOWERS, BRING FLOWERS.**"—Felicia Hemans is dead, after long suffering. But she cannot all die—while tender and beautiful images and gentle affections, expressed in genuine poetry, can confer immortality.

**DEATH OF MRS. HEMANS.**—Died, on Saturday evening last, in Dawson street, Dublin, after a long and painful illness, which she bore with that cheerfulness and pious resignation which might have been expected from her writings and her character, Mrs. Hemans. [Dublin Mail.]

**MISS EDGEWORTH.**—It is stated in an Irish paper, that this admired writer—now no longer young—had by an accidental fall, broken her leg.

Yesterday a public meeting was held in the Mechanics' Institution, for the purpose of agreeing on a petition to the House of Commons for the repeal of the stamp tax on newspapers, Mr. Wakley, M.P., in the chair. The meeting was numerously attended. Mr. Roebuck, M.P., moved the first resolution, which was seconded by Mr. O'Connor, M.P. Both gentlemen addressed the meeting in speeches, which were greatly applauded. The resolutions were unanimously agreed to; a petition, founded upon them, to the House of Commons, was likewise agreed to, and Mr. Wakley requested to present it. Letters were read from Lord Brougham, Mr. Hume, Col. Evans, Mr. Cobbett, Sir S. Whalley, and Mr. T. Duncombe, who had been invited to attend, declaring their concurrence in the object of the meeting, and regretting their inability to attend. [Times.]

**LONDON, May 21.**—We gave on Monday an account of the abrupt manner in which the Belgian Chambers had been brought to the close of their labors. Our Brussels correspondent's letter, which appears in another column, contains some remarks relative to the causes of that occurrence, which will not be read without interest. The session has lasted six months, during which period it has done but little for purposes of public utility. The Chamber of Deputies has held 119 sittings, of which fifty-three were entirely devoted to the communal law. The other sittings were taken up with long dis-

cussions on the budgets and the law of expropriation.

#### TURKEY.

The sailing of the Sultan's fleet from the Dardanelles for Tripoli is confirmed. It left the Straits on the 28th, with a force calculated not to exceed 3000 or 4000 men.

#### PERSIA.

Letters from Persia bring accounts that the greatest anarchy prevails in that country. Mohamet Miza has appeared at the head of 60,000 men and 60 pieces of cannon, before the gates of Teheran, where he proclaimed himself King. Prince Shah, Governor of the town, wished to oppose his entry, but was obliged to retire, owing to Ali Yankhan, general of his army declaring in favor of Mohamet.

**LONDON, Monday, May 25.**—The Allgemeine Zeitung states, that the Shah of Persia had entered Isfahan in triumph, and that the civil war in that kingdom might be considered at an end.

**LATER FROM EUROPE.**—By the London packet Philadelphia, of 1 ult. papers to 31st May are received:

The affairs of Spain furnish the chief topic of interest, and it now seems certain that the rumors heretofore treated rather as stockjobbing inventions, than as founded in truth, of the growing strength of the Carlists, and the proportionate sinking of the Queen's cause, are confirmed.

The Queen has finally applied for the aid stipulated in her behalf by the quadruple treaty; and we are to expect to see a Portuguese force from one quarter, and a French force from another, enter Spain, while England shall have a fleet on the coast to intercept supplies to the Carlists. These, at least, are the stipulations of the treaty, if they be complied with. It is said, however, that Louis Philippe is by no means anxious to fulfil his part, of sending an army of fifty thousand Frenchmen into Spain, to sustain a cause which, as not being well looked upon by the Northern powers, he, too, is careless about.

In England the Ministry have sustained another defeat in their candidate for South Staffordshire, Sir E. Goodricke, Tory, being elected, after a hard contest, over Col. Anson, the Ministerial candidate.

A Riot ensued at Wolverhampton, which the troops were called in to suppress. They fired upon, and charged the mob, wounding several but not killing any.

Owing to the extent of gambling in foreign securities, especially in Spanish Bonds, great derangements occurred on the London Stock Exchange on settling day, and immense losses were sustained.

From Paris, the dates are of 28th May. Nothing more of our indemnity bill in the House of Peers—which House indeed is said in an extract to have adjourned *sine die*. That, however, is evidently an error—though they may possibly have adjourned the trial of the conspirators.

From late official returns it appears that the number of curates in England, whose salary amounts only to 80l per annum, or less than \$400 is five thousand two hundred and eighty-two! that, too, in a land where the income of the bishop is from \$20,000 to \$100,000 per annum.

**SLAVE TRADE.**—On the motion of Mr. Buxton, in the House of Commons, an address to the King was agreed to, requesting his Majesty to take effectual measures to put an end to the slave trade, by endeavoring to form such treaties with foreign nations as will extend the limits of the right of searching slave vessels to the whole of the Western and Eastern coasts of Africa and the island of Madagascar, allow the vessels captured to be broken up, and declare the trade in slaves to be piracy. Mr. Hume seconded the motion; which Mr. Spring Rice did not oppose; though he said that treaties were actually pending with Spain and Por-

tugal, having for their object the accomplishment of Mr. Buxton's views.

Mr. Wyse obtained leave to bring in a bill to establish a Board for the advancement of education in Ireland. The object of Mr. Wyse appeared to be to extend the benefits of the Government plan now in operation.

The members of the London Mechanics' Institute assembled on Wednesday, at their theatre in Southampton Buildings. Among the gentlemen on the platform, were Sir Francis Burdett, Mr. Hume, Mr. Harvy, Mr. Tooke, and Mr. Robert Owing. Dr. Birkbeck took the chair, and delivered the prize to the members. Sir Francis Burdett addressed the meeting in praise of the objects of the Society; after which several resolutions were carried.

**A TURK CONFORMING TO CHRISTIAN USAGES.**—A dinner was given by the merchants of London engaged in the Levant trade, to Nourri Effendi, the recently arrived Ambassador from the Court of Turkey. It was attended by upwards of a hundred of the Levant merchants; among whom were Sir J. R. Reid, M. P., Mr. Robinson, M. P., and the Lord Mayor. The chairman was Mr. Grant. He explained, that as Nourri Effendi understood no language but his own, and as none of the suite were very conversant with English, it would be necessary for him to propose the toasts in French; his Highness the Prince of Samos, who sat next to his Excellency, having kindly undertaken to convey their meaning in Turkish. In the course of the evening, the reserve of the Turk yielded to the conviviality which reigned around, and among the happiest of those present none appeared more happy than Nourri Effendi; who drank wine and cheered as the toasts were given, as heartily as any English foxhunter, in happy forgetfulness of the Prophet's commands.

The eight Metropolitan Water Works, which supply London, furnished in 1833, *thirty-five million gallons daily!* Upwards of three millions sterling, or about thirteen millions and a half dollars, had been expended on the works—yet a fresh water river, the Thames, runs through the city.

At the beginning of the present century (1800) there were not more than forty Catholic Chapels throughout England. There are now (1835) more than five hundred! some of them built on a large scale—quite cathedrals—and it is also true that these edifices are multiplying every month. [Dublin Journal.]

**FRENCH ARMY.**—The following data, from the *Annuaire Militaire* show that the estimates of the French army are smaller than the last year of the Restoration. In 1830 the infantry consisted of 24 battalions of the guards, 64 regiments of the line, making 192 battalions; 29 regiments of light infantry, consisting of 44 battalions; foreign legion, 3 battalions; 4 Swiss regiments, or 12 battalions:—total, 275. In 1834, 67 regiments of the line, or 201 battalions; 21 light infantry, or 63 battalions; foreign legion 6 battalions:—total 270, being 5 battalions less than in 1830. The reduction is still more sensible in the cavalry. In 1830, cavalry of the guard, 8 regiments or 48 squadrons; 4 companies of body guards, or 8 squadrons; gendarmes d'élite, 2 squadrons; carbineers, 12 squadrons; 10 regiments of cuirassiers, or 48 squadrons; dragoons, 12 regiments, or 72 squadrons; chasseurs, 18 regiments, or 108 squadrons; hussars, 6 regiments, or 24 squadrons:—total 322. In 1835, 50 cavalry regiments, or 250 squadrons; 72 less than in 1830. [Baltimore Gazette.]

#### DOMESTIC INTELLIGENCE.

Mr. LIVINGSTON, the Minister of the United States to France, arrived in this city on Friday night from New York, and is still here. On his way to this city, he received various marks of regard from his fellow citizens, and, among them, an invitation to a Public Dinner, which he accepted, from a number of political friends at Philadelphia. [Nat. Intelligencer.]

We understand that Dr. Samuel Moore has resigned the office of Director of the Mint of the United States, to take effect on the first of the next month, and that Robert M. Patterson, M. D., of the University of Virginia, has been appointed to succeed him. [Globe.]

**LARGE DIVIDEND.**—The Atlantic Insurance Company of this city, yesterday, declared a divi-

dend of ten per cent. for the last six months, payable on the 7th inst.

**LAW OF PRINTERS.**—We learn from a gentleman who was present, that in the case of Arnolds vs. Clifford, tried at Newport last week, Judge Story, upon an incidental point, stated, that a promise on the part of the writer of a libel to indemnify the printer of it against any damage he might sustain for printing, could not be enforced. Even if a bond were taken, that would be void.—[Daily Ad.]

The curious phenomenon of the Water Spout was witnessed on Sunday evening, about 6 o'clock, by hundreds of our fellow-citizens. It was formed near the lower extremity of the Ohio Falls. According to those, who saw the formation, a cone, in the shape of a trumpet, descended towards the river from a thick dark thunder-cloud, and at the same time, the agitated waters beneath whirled round and ascended with a spiral motion in the form of vapor, till they united with the cone of the cloud, when the whole column moved rapidly and majestically about a mile and a half up the river, where it struck the woods in Indiana, nearly opposite to this city, and disappeared. The whirlwind then passed over a part of Jeffersonville, unroofing houses and doing other damage, but soon struck the river a second time, forming another water spout, which crossed the river to the Kentucky side and disappeared a short distance above Geiger's Mills. On both sides of the river, the whirlwind's path is marked with desolation.—[Louisville Journal.]

**TORNADO.**—We learn by a letter from a gentleman in Liberty, in this county, that the eastern part of that town and the western part of Never-sink were, on Friday evening last before it was quite dark visited by a tornado, unprecedented in violence in that part of the country. It first vented its fury on the farm of Judge Crary, tearing up by the roots some of his most valuable apple trees, thirty or forty in number, destroying the shade trees near his dwelling house, and prostrating a large portion of his fences. The next place where much damage was done was the farm of Mr. Benjamin B. Krum, where two large hay houses were levelled with the ground; his barn was also injured; a few sheep were also killed. The hurricane thence passed to the farm of Mr. Phillip Leroy, killing a cow in its progress, and tearing from the ground rocks which, it is said two yoke of oxen could not have drawn out. About two miles further a new barn, belonging to Mr. Bently was blown down, and on the farm adjoining, belonging to Doctor B. Wales, a large building enclosing a cider mill and press, and another small building were entirely demolished. The house of Dr. Wales also received some injury. We have heard nothing of the further progress of the tornado in this direction and it seems soon after to have spent its force.—The stream of wind seems to have been about fifteen rods in width, accompanied with a dreadful noise, vivid and continued flashes of lightning and heavy thunder. The violence of the wind is almost beyond belief. Pieces of the cider mill of Dr. Wales, and the barn of Mr. Bently were carried to the distance of nearly a mile. Apple trees were blown several rods from the places where they stood, and in some places, it is stated that the grass was cut as smooth as could have been done with a scythe.

We learn from another source that the tornado extended its ravages into the town of Rockland.—A barn belonging to the Messrs. Waterbury was prostrated, and a large quantity of timber trees were blown down. A cow belonging to Mr. Israel Dodge and an ox of Mr. F. Smith were killed. We have not heard that any person has been either killed or injured.—[Monticello Herald.]

On Saturday afternoon our city was visited by a very heavy gust of rain, accompanied with thunder and lightning. The rain commenced falling about half past six, and was preceded by a violent whirlwind, which passed over without doing any material damage to property. In Albemarle street, two three-story houses, covered with tin, were unroofed, and a poplar tree immediately in front of them was blown down, but no person was hurt. The houses were occupied by Mr. John Fisher, and Mrs. Briscoe.

We regret to state the occurrence of a very serious accident immediately after the rain commenced. A number of persons took shelter in the Court House, and while there the electric fluid struck one of the chimneys and knocked it down among them. One of the bricks fell on the head

of a son of Chief Justice Marshall, and fractured his skull. Medical aid was immediately called, and we learn that though he now lies in a very dangerous condition, there is nevertheless some hope that he may survive.—[Baltimore American.]

**STEAM FACTORY.**—In the town of Newport are two Steam Cotton factories now in operation, and another is immediately to be built upon a large scale, being two hundred feet long by forty wide.—Those engaged in these enterprises say they have by practice demonstrated that it is cheaper to use steam power in the midst of a dense population, than to use water power, which often makes it necessary not only to build a factory but a town also. There is transportation, and various other items, which come into the account on one side or the other.—[Jour. of Commerce.]

Great excitement is said to prevail in Matamoras among the foreigners in consequence of the imprisonment of Messrs. Boyd and Lee, American merchants, and the subsequent harsh treatment they received. The Mercurio of Matamoras says that a few days before, the Parish Priest while conveying the sacrament in the usual cortege to the house of a sick person, was met by the above named gentlemen, who did not pay to the procession those marks of reverence which are customary. The Priest, irritated, appealed to the spectators, ordered them to seize Messrs. Boyd and Lee, and throw them into dungeon, which was done without the least hesitation on the part of the people, or interference on the part of the magistrates.

A correspondent of the Army and Navy Chronicle furnishes the following information respecting the movements of the U. S. Dragoons on our western frontier.

**FORT LEAVENWORTH, 29th May, 1835.**

Dear Sir:—For the information of your military readers, as well as those who have relatives and friends amongst the dragoons at this post, you can, if you think proper, say, in your next Chronicle, that Captain Hunter, with his company "D," about forty men, and wife, left here yesterday for his summer's tramp, as directed by the general order for the disposition of the dragoon regiment.—Mrs. H. has a saddle horse and small covered dearborn for her own use, and intends passing the summer in the field with her husband; she is an amiable and charming lady, and, as you may well conceive, a good soldier.

The officers with Captain H. are Lieutenants Moore and Ury, the latter acting commissary of subsistence, &c., a citizen, Doctor Wood, is employed for this company.

Colonel Dodge, with the remaining three companies "A," "C," and "G," consisting of about 100 men, in all, marched to-day. The officers with him are Lieutenants Kingsbury, Acting Adjutant; Terrett, Assistant Commissary of Subsistence; Lieutenant Steen, Ordnance Officer, in charge of two swivels mounted on wheels; and Assistant Surgeon B. F. Fellowes, U. S. Army; Captains Ford and Duncan, and Lieutenant Lupton, commanding companies; and Lieut. Wheelock, doing duty in company "C."

Colonel Dodge's route will probably be by the way of the Otto village, near the Platte river and Council Bluffs, to the "Pawnees" and "Aurickaree's;" and from thence the colonel intends to penetrate, as far as the season will admit of, into the "Blackfoot" country, to the north; and, if possible, obtain an interview with these Indians. He will also seek a meeting with the "Crows," who inhabit the region to the southwest of the Blackfoot, in the vicinity of the Rocky Mountains, near the head waters of the Yellowstone river.

Colonel Dodge takes with him, on pack mules, provisions for sixty days, and about twenty head of beef cattle. Two ox teams, loaded with flour, also go with the command as far as the Pawnee villages, when the flour will be distributed amongst the packs, and the teams discharged.

Major Dougherty, Indian Agent, who is intimately acquainted with the country over which the troops will march, and so well and favorably known for his acquaintance with the Indians, has volunteered his services to Colonel Dodge, and will accompany the dragoons on their expedition.

The horses are in good order, and the men in fine spirits, and all the officers anticipate an interesting tramp.

[From the Providence (R.I.) Journal.]

**THE LAST OF THE TEA PARTY.**—Last Friday we had the satisfaction of seeing and conversing with the only survivor of that daring band of patriots, who offered the first open resistance to the oppressions of the British Crown, the venerable *Joseph Robert Twelves Hughes*. Mr. Hughes was passing through Providence, from his residence Otsego county, New York, to attend the anniversary celebration of the independence of his country at Boston, whither he had been invited as the city's guest.

He was born in Massachusetts on the 5th of September, 1735, and on the 4th of July will want only sixty-three days of being one hundred years old.—His youngest son, the fifteenth of his children, and apparently about forty years old, was with him.—We have seen many men of seventy who appeared as old as Mr. Hughes. His voice was strong, his stature quite erect, and his step comparatively firm. He was evidently, even at this age, a brave, high spirited, warm hearted man, whose tongue was never controlled by ceremony, and whose manners have not been moulded by the fashion of any day. His etiquette may be tea party etiquette, but it was not acquired at tea parties in Beacon street or Broadway. The venerable Moses Brown, almost his compeer in years, called upon him and was introduced.—The contrast between the mild, gentlemanly mien of the patriarchal Friend, and the rough address of the veteran hero, was strikingly apparent.—The one was an apt personification of brazen fronted War, the other the dignified representative of gentle Peace.

During the Revolutionary war Mr. Hughes sailed out of Providence in an armed sloop, owned by John Brown, captured three prizes, and brought them into port. Our interview with him was so short that we had not an opportunity of ascertaining the other achievements of his protracted life.

The first person he inquired for on arriving here was the late Mr. George Freeman of this city, whom he says he named when an infant, and who died about ten years ago, at an age of upwards of fifty years.

**EXPEDITIOUS TRAVELLING TO RUSSIA.**—A passenger who arrived at Havre in the packet ship *Charlemagne*, embarked the same day in the *Steam* packet for Hamburg, which performs the passage in 50 hours, when they take the stage for Lubec, drive there in six hours, and then embark in the General Steam Navigation Co.'s Packet for St. Petersburg, where they arrive on the fourth day—thus making a voyage from New-York to St. Petersburg, in less than 25 days.—[Jour. of Com.]

The Captain of the brig *Falcon*, at Baltimore, which left Rio Grande May 13, reports that one tenth of the inhabitants died in the months of March and April, of Cholera. Markets for all kinds of American produce glutted, and country produce very scarce and high.

#### On the Loss of a Child in Infancy.

"They only can be said to possess a child forever, who have lost one in infancy."

Our beauteous child we laid amidst the silence of the dead, We heaped the earth and spread the turf above the Cherub head;

We turned again to sunny life, to other ties as dear, And the world has thought us comforted when we have dried the tear.

And time has rolled his onward tide, and in his ample range, Has poured along the happiest paths, vicissitudes and change.

The flexile forms of infancy their earliest leaves have shed, And the tall and stately forest trees are waving in their stead. We guide not now our children's steps as we were wont before,

For they have sprung to warrior men, they lean on us no more,

We gaze upon the lofty brow, and time and thought have cast

A shade through which we seek in vain the memory of the past.

And do we mourn the utter change which mocks our memory here?

Oh no! 'tis but the answered wish of many a secret prayer, Centre of all our dearest hopes, we live but in their fame; But our love, as to a little child, how can it be the same?

We still have one, an only one, secure in sacred trust;

It is the lone and lovely one, that's sleeping in the dust;

We fold it in our arms again; we see it by our side, In the helplessness of innocence, which sin has never tried.

All earthly trust, all mortal years, however light they fly,

But darken on the glowing cheek and dim the eagle eye;

But thee, our bright, unwithering flower, our spirit's hoarded store,

We keep through every chance and change, the same forever more.

**CIRCULAR.** To ENGINEERS and Superintendents of Railroads and Canals.—I am preparing to issue a new edition of my RAILROAD AND CANAL MAP; and being desirous to correct the errors of the first edition, I take the liberty to request the ENGINEER, or SUPERINTENDENT, of every Railroad and Canal in the UNITED STATES, to furnish me at his earliest convenience with a full and precise account of the condition of the railroad under his direction or charge. He is requested to state the length of the road, the number of miles completed, the elevation it surmounts, the radius of its curves, the style of its construction, its average cost per mile, the number, if any, of inclined planes, with stationary engines—in short, every thing which may be of interest to engineers, or others who may be connected with the subject of Railroads and Canals.

To such as comply with the above request, and furnish the desired information previous to the first of August next, a copy of the new edition of the Railroad and Canal Map, will be sent, by mail or otherwise, as may be directed, as soon as completed.

D. K. MINOR.

New-York, June 27, 1835.

#### RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

This work is published once a week, in quarto form of EIGHT pages, devoted mainly to the subject of internal improvements, in all its various modes and forms.

Three volumes were completed in December, 1834, and the 4th volume is now in progress.

Terms, \$3 a year, IN ADVANCE. Previous volumes same price; full set of four volumes, \$12.

#### RAILROAD AND CANAL MAP,

Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country Price \$2

#### MECHANICS' MAGAZINE, AND REGISTER OF INVENTIONS AND IMPROVEMENTS.

This work has nearly completed five volumes. It is published monthly, in numbers of 64 pages each, in large octavo form, and forms two good sized volumes a year, of 384 pages each.

This work is STEREOTYPED from the first number, and therefore any number of copies may be obtained from commencement, if desired. It has many able correspondents, who furnish original communications, in addition to its selections from the best European periodicals of the day, with numerous engravings and illustrations of the subjects on which it treats. The Mechanics' Magazine may be considered as one of the permanent periodicals of the country. Price, \$3 per annum, IN ADVANCE. Previous volumes \$1.50 each.

#### THE APPRENTICE'S COMPANION—

A monthly publication, in large octavo form, of sixteen pages each number—designed to persuade APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D. K. MINOR.

\* All letters must be postage paid. Eleven numbers sent to one address for \$5,—and TWENTY-THREE for \$10. D. K. M.

#### NEW-YORK FARMER AND AMERICAN GARDENER'S MAGAZINE.

This work is devoted mainly to AGRICULTURE and HORTICULTURE; it, however, treats upon various other subjects more or less connected with them. It is now in its 8th volume, or 3d volume, new series, and is designed to be made equal to any work of the kind in this or any other country. No reasonable expense will be spared, either to secure the best writers the country affords, or to furnish engravings and illustrations. It is published monthly in large octavo, 32 pages per month, at \$3 per annum, and when paid in advance eight additional pages per month are given—Vols. 6 and 7, or 1 and 2, new series, \$3 per volume.

#### QUARTERLY JOURNAL OF AGRICULTURE, MECHANICS, AND MANUFACTURES.

This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at \$5, but will be, hereafter, at \$4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,  
35 Wall street, New-York.

#### PARTNER WANTED.

Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish \$3000 cash capital. The best of references will be given and required. Letters, with real name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-17

#### RAILROAD IRON.

500 Tons Railroad Iron, 2 inch by 1/2, with Spikes and Spiking Plates to match, for sale by

WM. G. BULL & CO.  
26-3tp 74 Wall-st.

#### RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

#### TO TUNNEL MINERS, DRILLERS, &c.

Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred), 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.  
The Albany Argus, Philadelphia U. S. Gazette and Pennsylvania, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23-17

#### PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to be public as superior to any thing of the kind now in use. Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept. 13-17

#### PATENT RAILROAD, SHIP AND BOAT SPIKES.

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 223 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

132am

H. BURDEN.



#### PATERSON AND NEW YORK RAILROAD LINE. SUMMER ARRANGEMENT FOR 1835.

Passengers will leave Paterson at New York, by Jersey City Ferry at

6 1/2 o'clock, A. M. by Steam	5 1/2 o'clock, A. M. by Horses
10 1/2 " " " " " "	8 " " " " " "
2 1/2 " " P. M. Horses	11 1/2 " " " " " "
5 1/2 " " " " " "	3 " " " " " "
6 1/2 " " " " " "	6 1/2 " " P. M. Horses
	Steam

#### ON SUNDAYS.

Paterson at 5 1/2 o'clock, A. M. by Steam,	
3 1/2 " " " " " "	P. M. Horses,
5 " " " " " "	Steam,
New York at 5 o'clock, A. M. by Steam,	
9 1/2 " " " " " "	Horses,
6 1/2 " " " " " "	P. M. Steam.

Ticket Office in Paterson, corner of Congress and Main streets, opposite "Congress House."

Ticket Office in New York, 75 Courtland st.

Passengers with Tickets will have a preference in seats.

Fare from Jersey City, 50 Cents.

Transportation Cars will also ply three times a day each way.

As the Ferry boats do not leave New York precisely at the above times, it is recommended to passengers to procure their tickets and to be at the Ferry a few minutes before the stated hours of departure.

July 17

PATRICK COUGHLIN, Agent  
in New York.

#### STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads.

No. 264 Elizabeth street, near Bleeker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J26 17

#### RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

#### RAILWAY IRON.

95 tons of 1 inch by 1/2 inch,	Flat Bars in lengths a
200 do. 1 1/2 do. do.	14 to 15 feet, counter sunk
40 do. 1 1/2 do. do.	holes, endcut at an angle
900 do. 2 do. do.	of 45 degrees, with splicing
800 do. 2 1/2 do. do.	plates and nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rails of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels.

Axles of 2 1/2, 2 3/4, 3, 3 1/4, and 3 1/2 inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.  
9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d17meowr

#### SURVEYORS' INSTRUMENTS.

Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street, corner of Maiden lane. J31 6t

#### SURVEYING AND ENGINEERING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.  
In reply to thy inquiries respecting the Instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repair, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a revolving telescope, in place of the vane sight, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES P. STABLER, Sup't of Construction  
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.  
Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.  
Germantown, and Norrist. Railroad

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